

MAPS, PLANS, AND VIEWS OF THE CITY OF ROME,  
WITH ESPECIAL REFERENCE TO A DRAWING, OF THE SIXTEENTH CENTURY,  
IN THE BURLINGTON-DEVONSHIRE COLLECTION.

By Professor the Commendatore R. LANCIANI [*Hon. Corr. M.*], D.C.L.Oxon.

THE perspective view of Rome, reproductions of which are given on subsequent pages, ranks among the best documents for the study of monumental Rome about the middle of the sixteenth century (1562). I have seen the original, in the Library of the Institute, with the drawings of Andrea Palladio and others collected by the great Earl of Burlington, but I cannot avail myself of the notes I was kindly allowed to take at the time (September 1894), having left them behind in Rome; and as there are no reference books in this solitude of Vallombrosa, I must confine myself to a few remarks of a general character.

Before the publication of de Rossi's *Piante iconografiche e prospettiche di Roma anteriori al secolo XVI.*, which took place in 1879, the oldest map of value known to topographers was that of Leonardo Bufalino, edited in 1551. There is a mutilated copy of it in the Barberini Library, most negligently engraved on wood, which had been seen before the mutilation, and engraved on copper to a reduced scale by Nolli in 1748. In 1877 a perfect copy of it, in pen-and-ink, was discovered in the convent of the Cappuccini at Cuneo, the reproduction of which in fac-simile was entrusted to my care by Giuseppe Fiorelli, then Director of the Department of Antiquities for the Kingdom of Italy. Finally, in 1893, I succeeded in discovering a complete and unique copy of the original in the British Museum. I have not yet had occasion to speak of this valuable find.

De Rossi's work opened up a new field of inquiry. It proved beyond doubt that the periodical reproduction of maps of Rome was not interrupted, even in the darkest periods of the Middle Ages; and that they all followed an old Roman prototype of the fourth century, which in its turn descended from the great *Forma Urbis* engraved on marble in the time of Severus and Caracalla (Heinrich Jordan, *Forma Urbis Romae*: Berlin).

It would be very interesting to follow the evolution of the prototype as it passed from hand to hand of copyists and illuminators at an age when even the fundamental notions of topography and cosmography were ignored. The irregular course of the city walls is transformed first into an oval, then into a circle; the monuments placed, not according to their site, but at regular intervals, and symmetrical with the meridian line. The written indications, however, had a better fate. We have the evidence of it in the *Itinerarium Einsiedlense*, which is not an abridged description of Rome for the use of pilgrims of the eighth century, as generally thought, but an index of names written on a map of the city, a copy of which,

engraved on silver, was offered to Charlemagne. The names are the same as on the old classic Roman maps, with the addition of those of some Christian churches and suburban places of pilgrimage.

Since 1879 the series inaugurated by de Rossi has received many valuable additions, the list of which can be found in Huelsen's article on the panorama of Rome now at Frankfort.\* Among them I must mention "une vue inédite de Rome en 1459," discovered by the late Auguste Geffroy (in MSS. cc. 12 of the Library of Sainte-Geneviève, Paris), which contains the book *De Civitate Dei*, copied on vellum by Johann Goebel of Linz, and illuminated by Niccolò Polani for Nicolas Fortiguerra, Bishop of Teano. The view dates from 1459, and has been published by Geffroy in vol. xii., 1892, of the *Mélanges de l'École française de Rome*. Dr. Josef Strzygowski has given us a photographic copy of Cimabue's fresco in the upper Church at Assisi in his *Cimabue und Rom* (Vienna, 1888). A view of Rome painted in an oval of the chapel of the Palazzo Comunale at Siena, and dating from 1414, has been illustrated by Henry Stevenson in the *Bull. della Comm. Arch.* 1881. It is the work of Benozzo Gozzoli.

Besides the fresco of Siena there are other panoramic plans of the beginning of the fifteenth century : that of the *livre d'heures* of the Due de Berry, published in the *Antiquités de la ville de Rome* (Paris, 1886); that of Leonardo da Besozzo, contributed by Ferdinand Gregorovius to the *Memorie della r. Accademia dei Lincei* (vol. xi. 1883); that of MSS. 104 of the private library of King Humbert of Italy at Turin, entitled *Figure Storiche* (1433); that of MSS. 9673 of the Bibliothèque Nationale, Paris; and that of Bicci di Lorenzo in the cloisters of San Bernardo at Arezzo. The celebrated fresco of Il Sodoma, in the cloisters of Monte Oliveto Maggiore, dates from 1505; and at that time the artist had never set foot in Rome. Above the mausoleum of Gregory XI., in the Church of Santa Francesca Romana, there is a bas-relief by Pietro Paolo Olivieri, representing the arrival of that Pope from Avignon, in which the view of the city is very interesting.

Dr. Thode, late Director of the Museum of Frankfort, purchased, in May 1890, from the Paulis Collection at Cologne, two panels representing the history of Mucius Scævola and of Horatius Cocles. The value of these paintings, attributed without reason to Filippo Lippi, and even to Paolo dell' Uccello, consists in the view of Rome, which runs through the background of both, from Santa Croce in Gerusalemme in the extreme left to the bridges of the Tiber on the right.

These conventional panoramic views mark the last stage in the evolution of the *Forma Urbis* before the art of investigating and directly measuring the ground came into fashion again. Classic Roman maps were simply ichnographic, as shown by the one engraved on marble at the time of Severus and Caracalla, now in the Capitoline Museum. Towards the fall of the Empire perspective or pictorial elements began to creep into them. In the map of the time of Charlemagne the site of the gates is not marked by an interruption in the line of walls, but by the orthographic sign  $\square$ , and the site of obelisks and pyramids by the sign  $\Delta$ . In course of time the geometrical form was entirely superseded by the perspective, and while the representations of the city became thus more intelligible to illiterate travellers and pilgrims, they gained in picturesqueness what they lost in exactness. Once this was adopted, each reproduction was evidently modified and altered according to the feelings or interests of the draughtsman. A map for the use of pilgrims would bring into evidence churches in preference to classic ruins, and give to the shrine of a martyr more space than to one of the great temples of the gods; but those inserted in books on cosmography were more honest in representing the truth. Under the German representatives

\* *Bulletino della Commissione Archeologica comunale di Roma. Serie Quarta.* 1892, p. 38. Professor Ch.

Huelsen's article treats of a perspective plan of Rome in the fifteenth century, with illustrations.

of the Holy Roman Empire a new type was adopted, indicating the site of the city by a group of its leading edifices—Pagan, Christian or Mediæval—massed together without any regard to their real location, and to their respective size. The oldest productions of this class are the vignettes of the Imperial seals, with the legend AVREA ROMA, from which are derived those illuminated in the *livres d'heures*, or painted as a background to historical frescoes.

The edifices which appear in documents of this sort are always the same: the Pantheon; the Mausoleum of Hadrian, with the mediaeval fortifications around and above it; part of the Colosseum; one or two temples; the funeral pyramid near Santa Maria Traspontina, known as the Meta di Borgo; the obelisk of the Vatican, with the gilt globe on the pinnacle, containing, as tradition went, the ashes of Augustus; the torre delle Milizie, the torre dei Conti, and the columns of Trajan and Hadrian. If the artist had never seen Rome, his work amounted to a replica of the same conventional type; but if he had actually visited, and, perhaps, sketched its Pagan and Christian edifices, he improved the type by adding here and there some characteristic detail. Thus, in the miniature by Johann Goebel, dating from 1459, and in the view by Hartmann Schedel, dating from 1464, we see for the first time the figure of the angel on Hadrian's mausoleum, in its typical attitude of sheathing the sword. And when the tradition about the Pantheon being a temple of Cybele, the mother of the gods, is accepted by the learned men of the age, we see the dome crowned by a pine cone, as in the fresco of Benozzo Gozzoli in the Campo Santo di Pisa, in the *Pilgerfahrt des Ritters Arnold von Harff*, and in other contemporary sketches.

We come now to a far more important set of documents—to the panoramic views of the city, sketched from nature with or without the help of a compass or a goniometer. I shall not speak of the many I have met with in various European libraries, an account of which has not yet been before the public; but, in order to make this preliminary notice complete, I will mention the few already available to students.

First of all comes the circular view designed in pen and sepia by Martin Heemskerck, the original of which, formerly in the Destailleur Collection in Paris, is now owned by the Kupferstich Kabinet of Berlin. The artist has placed himself on the western summit of the Capitoline Hill, among the ruins of the temple of Jupiter Optimus Maximus, now covered by the Palazzo Caffarelli and by the garden of the German Embassy. The foreground shows the aspect of the historical hill in 1534, when the Palazzo dei Conservatori had not yet lost its mediaeval outline at the hands of Michelangelo and Giacomo del Duca, and when the Palazzo Senatorio was still flanked and crowned by the battlemented towers of Boniface VIII. The western summit, where Heemskerck had seated himself to sketch, appears like a wilderness grazed by goats; a fact confirmed by the name of *Monte Caprino*, which still remains attached to it. Heemskerck's panorama was published in fac-simile by the German Archaeological Institute in 1891, with a brief description by the late Commendatore de Rossi.

In the library of the Escorial there is a sketch-book of sixty-three leaves with drawings from the antique by an artist contemporary with Giuliano da Sangallo and Fra Gicconde da Verona. He must have visited and studied the monuments of Rome at the end of the pontificate of Innocent VIII. or at the beginning of that of Alexander VI. A sketch in sheet 39 is dated ROMA MCCCCLXXXI.; while in another we find a drawing of the pyramid known as the Meta di Borgo, destroyed by Pope Borgia in 1499. Eugène Müntz [*Hon. Corr. M.*] has contributed to the *Mélanges de l'École française de Rome* (vol. xii. 1892), two specimens of panoramic views by this unknown artist: one represents the Leonine city, as seen from the lower slopes of Monte Mario; the other represents the banks of the Tiber as seen from the Aventine, near Santa Sabina.

The panorama designed in pen-and-ink by Anton Van den Wyngaerde, the Antonio de

las Viñas of the Spaniards, the original of which, two metres long, I found among the 19,224 drawings and prints of the Sutherland Collection in the Bodleian, has been reproduced in facsimile in the *Bullettino della Commissione Archeologica*.<sup>\*</sup> Anton Van den Wyngaerde has represented himself sitting in the centre of his panorama on the top of Constantine's Baths, which at that time (1560) towered on the Quirinal Hill, on the site of the modern palaces Rospigliosi and della Consulta. It would be out of place here to enter into a detailed account of this magnificent document, which has thrown so much light on the aspect and general state of the city about the middle of the sixteenth century.

What has been said in these introductory lines will enable the reader, I am sure, to appreciate to its full extent the value of the illustrations, in the present issue of the JOURNAL, reproduced from an original drawing in the Burlington-Devonshire Collection, now entrusted to the Royal Institute of British Architects. The drawing bears the following title :—

LA CITTÀ DI ROMA DELINEATA NEL PONTEFICATO DI PIO IV. L'ANNO MDLXII 1562.

The artist has placed himself east of the city, exactly above San Lorenzo fuori le Mura, on the road to Tivoli. The same point of view was selected by Leon Battista Alberti for his panorama of Mantua, and also by the author of the Frankfort panels. The topographical maps of the Romans were always oriented from north to south—that is to say, in the opposite direction to our own charts. The point was shifted from north to north-east and due east at the beginning of the cinquecento. Bufalino went to the other extreme, his celebrated plan being oriented from west to east, with the Janiculum at the foot of the sheet, and the Prætorian Camp above. Bufalino's innovation lasted for over two centuries because topographers and paysagists could not find a more suitable and commanding point of view than the Janiculum near the Porta San Panerazio.

The author of the Burlington-Devonshire drawing has simply transformed into a *rue à vol d'oiseau* the geometrical map of Bufalino, of which two editions had already appeared in 1562. Every characteristic detail of the latter has been faithfully copied, even in cases of manifest blunders, when a glance at the ground surveyed would have made it so easy to detect them. Enough to quote one instance, concerning the branch aqueduct of the Aqua Julia, which supplied the fountain now called I Trofei di Mario. According to Bufalino this branch did not originate and detach itself from the main channel at the Porta San Lorenzo, but came straight in from the Campagna east of the city, skirting the eastern corner of the Prætorian Camp. This topographical fancy, which rests on no foundation whatever, which is not corroborated by the slightest vestige on the ground, is followed in the drawing. Its author, therefore, whoever he may be, has not sketched it from nature, nor has he represented what actually did fall under his eyes—he has simply given an orthographic form to Bufalino's planimetry. The two works complete each other: they made the topography of Rome intelligible even to illiterate pilgrims; they show us, not only where its monuments were located, but their aspect, their height, their architecture.

Documents like the present one cannot be illustrated without entering the *mare magnum* of the monumental history of Rome in its Classic, Mediæval, and Renaissance manifestations. The only practical comment possible is to point out those specialties which are not to be found in other contemporary works, like the network of roads which we see crossing the high grounds of the Esquiline, the Cælian, and the Viminal, and the suburban belt, each one of which marks a classic line of communication. We can single out the *Via Merulana*, connecting the Churches of San Matteo, SS. Pietro e Marcellino, and the Lateran, abolished by Gregory XIII. in 1575; the *Vicus Longus* in the valley between the Quirinal and the

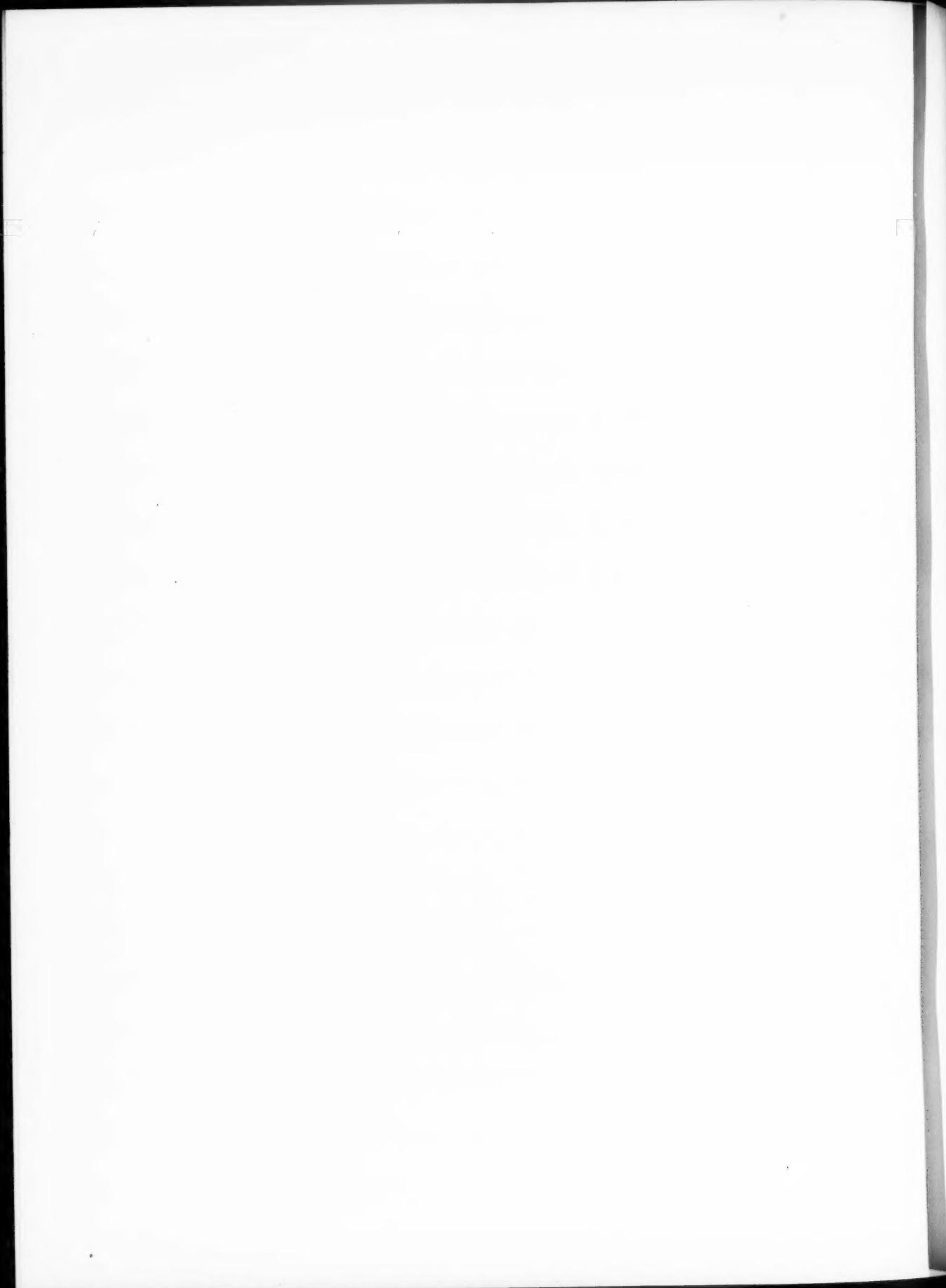
\* Anno XXIII.—Serie 4a, 1895, p. 81, Plates VI.-XIII.: forming part of an article, by Professor Lanciani, entitled “Il Panorama di Roma delineato da Antonio Van den Wyngaerde, circa l'anno 1560.”

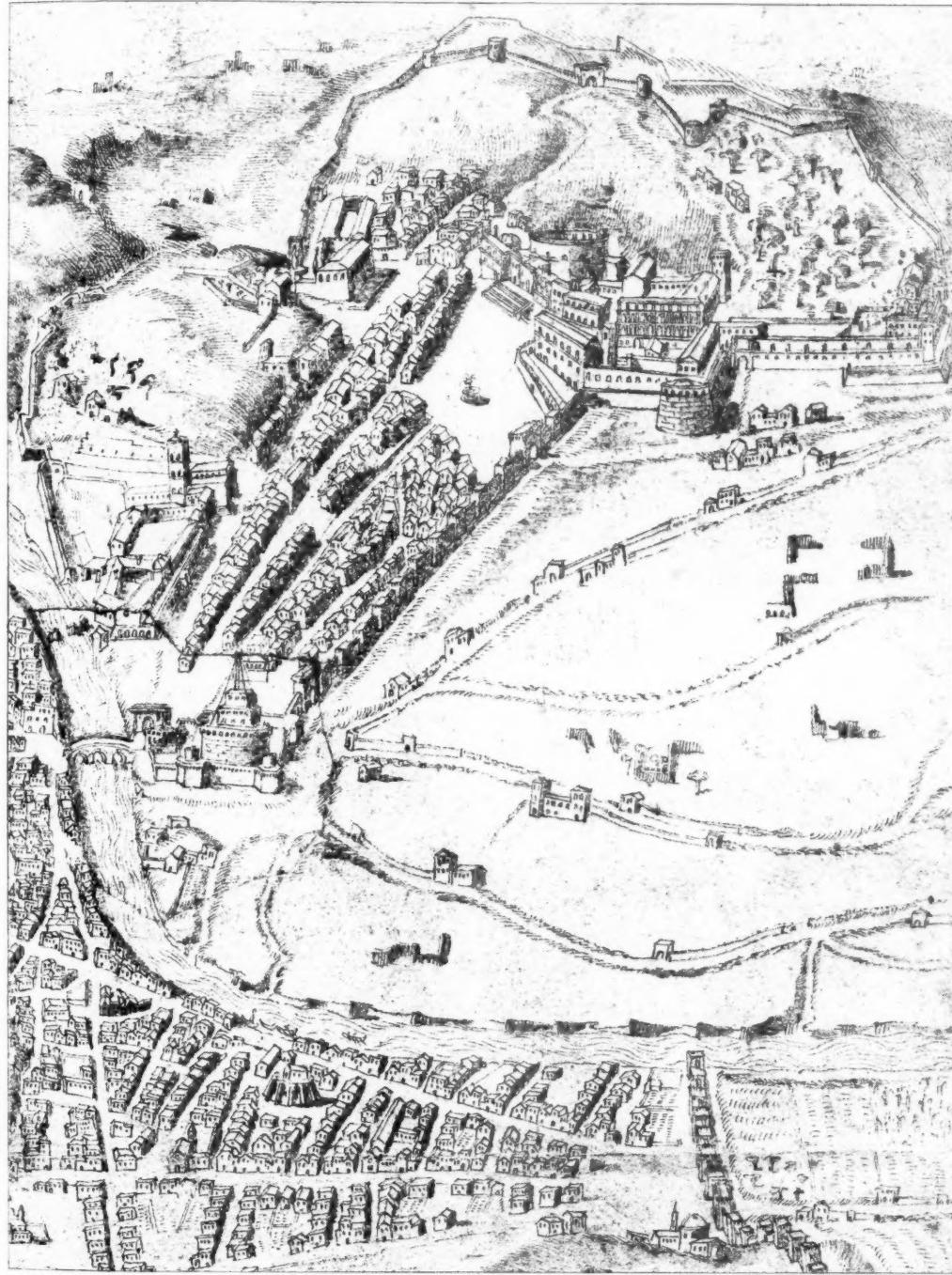


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PART OF THE CITY OF ROME IN 1562-A  
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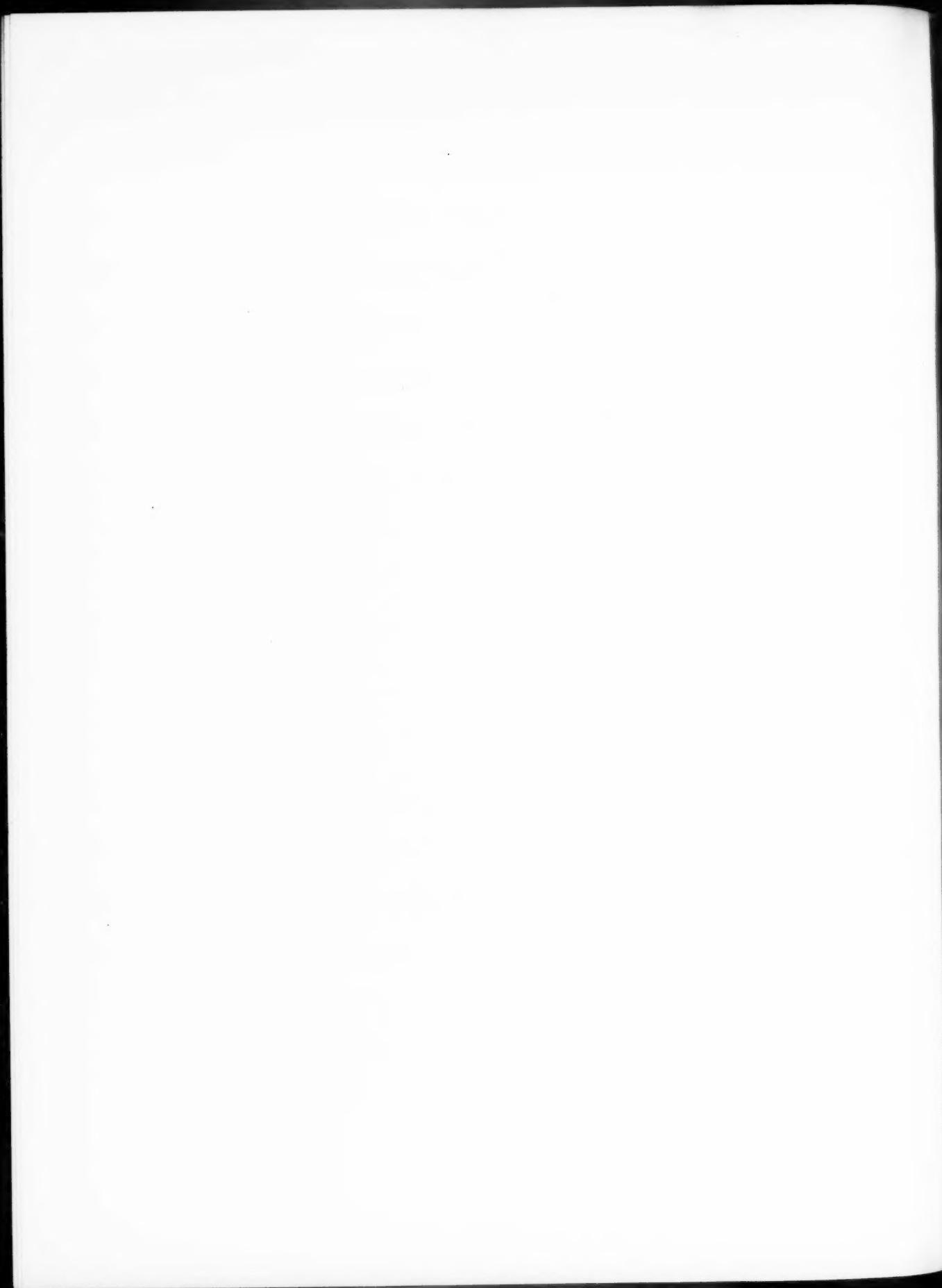




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PART OF THE CITY OF ROME IN 1562-B  
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Viminal, suppressed in the time of Urban VIII.; the *Via Collatina*, issuing from the Porta San Lorenzo, which has disappeared since 1870; the *Alta Semita*, the *Vicus Patricius*, the *Via Cornelia*, the *Salaria Vetus*, and scores more.

The two sheets, A and B, reproducing parts of the drawing on a larger scale, are better suited for the study of details. At the bottom of sheet A we see the fountain of the *Aqua Julia* facing the Arch of Gallienus, with the "trophies of Marius" not yet removed from their niches to the Piazza del Campidoglio; the Church of Santa Maria Maggiore with the Apostolic Palace (by Baccio Pontelli) attached to it; the Churches of Sant' Andrea in Catabarbara Patricia, of San Vito in Macello, of Sant' Eusebio, of San Matteo in Merulana, of SS. Pietro e Marcellino with their cloisters and bell towers *alta tedesca*, and cemeteries.

The Church and Hospital of San Giacomo del Colosseo, destroyed during the Napoleonic invasion, stands near the amphitheatre at the corner of the *Via dei SS. Quattro*, which is marked by a cross. The Septizonium had not yet been overthrown by Sixtus V. and his accomplice Domenico Fontana; the Monastery and Church of San Gregorio in Clivoscauri had not yet been disfigured by Cardinal Borghese and Francesco Soria.

Other points which claim the attention of topographers in Sheet A are: the *Forum Boarium*, the area of which still remained free from modern erections; the *Turris Chartularia*, near the arch of Titus; the Church and Hospital of Santa Maria in Portico, now succeeded by that of La Consolazione; the *Pons Aemilius*, still in its perfect state; the Torre dei Conti, two storeys high; the Piazza del Campidoglio, undergoing its slow transformation; the arched passage of the *Forum Transitorium*, near the Church of SS. Quirico e Giulitta, called in the Middle Ages the Arch of Noah; the Cesarini palace and garden, near San Pietro in Vincoli, &c.

Sheet B is of extraordinary value for the study of the Borgo, of the Vatican group in 1562, and of the many lines of fortifications which protected them from local and foreign enemies. The walls of Leo IV. start from the Castle of Sant' Angelo at the Porta Castello, and run in a straight line to the Porta di San Pellegrino, transformed by Pius IV. into the Porta Angelica. They appear again on the other side of the Belvedere of Innocent VIII., and enclose the Pope's gardens as far as the Porta Fabbrica, which spans the old *Via Cornelia*. The polygonal fortifications, begun after the sack of 1527, form an outer line of defence. The basilica of St. Peter is half ancient, half modern; and while we see the drum of the cupola already towering above the roof of the Constantinian Church, the front part retains its old outline, with the marble steps leading to the Porta Argentea, which is flanked by the Loggia della Benedizione, built at the time of Pius II. by Maestro Aristotile, with columns removed from the portico of Octavia. The dome of the imperial mausoleum, then called the chapel of Santa Petronilla, and the pinnacle of the Vatican obelisk appear above the Presbytery on the left of the Silver Gate. The Castle of Sant' Angelo is most carefully sketched, with the four polygonal bastions built between 1492 and 1495 by Alexander VI., with the round tower raised by Antonio da Sangallo at the entrance to the Ælian Bridge, and with the Porta di Borgo, otherwise called the *Porta Sancti Petri*.

In the sketch of the city on the left bank of the river we notice but one classic monument, the Mausoleum of Augustus, with the garden of the Soderini family above it. There are four main streets: the *Via Leonina*, now Di Ripetta, opened by Leo X., between the Churches of Sant' Ivo and Santa Maria di Monte Santo; the *Corsso*, following the line of the ancient *Via Flaminia*; the *Via del Babuino*, just traced through the orchards and gardens at the foot of the Pincian Hill; and lastly the *Via Trinitatis* (Condotti, Fontanella di Borghese, Tor di Nona of the present day), which connects the three arteries just mentioned with the Piazza di Ponte and the Borgo Vaticano. Few churches and palaces appear in the sketch, as this extreme

northern portion of the city had only just begun to be inhabited. We can trace out the Churches of Santa Maria del Popolo, of San Giacomo in Augusta, with the hospital attached to it, and of Sant' Ambrogio (now San Carlo al Corso), in the centre of the district inhabited by the Maestri Comacini and Lombardi, masons, carpenters, stonecutters, contractors, architects, from the Lakes of Como and Lugano, and from the banks of the Olona, who had flocked to Rome in quest of work. Among the prominent private buildings are the Palace of the Ruccellais (later Caetani and Ruspoli), at the corner of the Corso and of the *Via Trinitatis*; the Palazzo di Portogallo, now Fiano, near San Lorenzo in Lucina; the Palazzo di Baldovino del Monte, now di Firenze; and the house and bank of Bindo Altoviti.

One question remains to be answered, that of the authorship of this panoramic view of Rome in 1562. The fact that it has been preserved among the drawings of Palladio collected by the Earl of Burlington is not conclusive at all, because the Collection contains specimens by various hands, beginning from that of Raphael. I cannot even say whether Palladio was in Rome in 1562, though I remember that he is stated to have been present at the discovery of the *Fornix Fabianus* (a memorial arch to G. Fabius Allobrogicus, the conqueror of Savoy, which Palladio mistook for a sacred enclosure to the temple of Antoninus and Faustina); and that must have taken place about 1543.

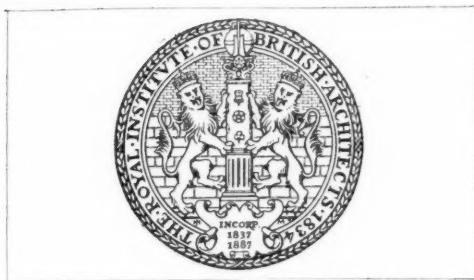
*Vallombrosa, 10th Sept. 1895.*

#### OVERHEAD WIRES IN LONDON.

THERE were good reasons why the question of the removal of overhead wires should have been ignored when the London Building Act 1894 was in preparation. The task was of such magnitude, the opposition to be expected from interested sources too formidable to risk. No practicable scheme was forthcoming—or, if there was, it seemed too costly to carry into execution. Yet the difficulty will have to be faced, and the longer the delay the more difficult and costly must be the remedy. The complicated network of wires over the streets and buildings of the metropolis goes on increasing in ever-thickening density. It is more than ever a source of danger, though the possibilities of mishap are too little realised. Take, for instance, a building on the Viaduct approach by Holborn Circus. Its roof supports a structure to which are attached some fifteen to twenty score wires, radiating in seven or eight different directions. A fire in such a building is not so very remote a contingency. Conceive the effect of the sudden collapse of the structure, and three or four hundred red-hot wires crashing among the crowd a London fire never fails to attract. As long ago as 1886 representations were made on the subject generally to the Government by the Metropolitan Board of Works. Nothing, however, was done. The municipal authorities doubtless await a tardy sacrifice of Bishops to stimulate them to initiative action.

New York, Chicago, and other cities of the United States have long since abolished overhead wires. There the telegraph, telephone, and electric light wires are conducted underground, either in conduits or in tunnels beneath the pavement. Week by week Londoners have an opportunity of inspecting the crude method adopted of laying electric-light wires, and most people will agree that the system does little credit to the fag-end of this century. Miles of paving—wood, stone, and asphalt—have had to be raised, trenches dug, the wires laid, covered up with loose soil, and the road made good again. In a few days something is found to be wrong, and a large section of the work has to be done over again, at infinite cost of money and labour. Gas and water mains, which must be constantly under repair, can only be reached in a most awkward manner, at considerable cost, and often to the discomfort and inconvenience of the public.

It is idle to say that no remedy for such a state of things can be found. Money is cheap enough; millions of capital seek an outlet, thousands of men employment. A satisfactory return on the original capital sunk might be assured. But, after all, the financial aspect of the question is not the point. The interests of public safety demand an Act to regulate the fixing of overhead wires, which is as necessary to-day as was the Sky Signs Act a few years ago. The latter now forms part of the London Building Act 1894, and it should be supplemented, at the earliest opportunity, with an Overhead Wires Act. Here, at least, is practical work for the London County Council.



9, CONDUIT STREET, LONDON, W., 19 September 1895.

## CHRONICLE.

## THE ARCHITECTURAL ASSOCIATION.

## Its Revised Curriculum.

The time-tables of 1895-96 [printed on pp. 671-75] of the courses of study organised by the Architectural Association for the respective use of Probationers and Students of the Institute have been expressly prepared in the interests of such of them as are eligible to apply for admission to the Intermediate and Final Examinations in 1897. These courses consist of instruction by competent teachers, both paid and honorary, in drawing and design in the Studio, and of Lectures and Classes; and the whole of the work is arranged to be done in the evening after half-past six o'clock. By this means an articled pupil may attend to the duties of his master's office in the daytime; and may be often, it is to be hoped, encouraged by that master to prepare for his evening's studies during office hours. It must not, however, be forgotten that though the Studio Instructor, Mr. W. G. B. Lewis, only attends between 6.30 and 9.30 p.m., the Studios, both upper and lower, are open during the day, and always available to members of the Architectural Association. It may be assumed also that the Studios are also open to members on evenings when the Instructor does not attend; and that the newly arranged Classes of Design will assemble therein—that is to say, the Elementary Class of Design will meet in the Lower Studio, and the Advanced Class in the Upper.

The time-tables referred to are prepared in view of a complete two years' course of study for *Probationers*, and another entirely distinct two years' course for *Students*. There is nothing, however, to prevent gentlemen, who are preparing for the Institute Examination by means other than those provided at the Architectural Association, from taking one year's Studio instruction, either upper or lower, the fee for which includes the Class of Design, Elementary or Advanced. In the same manner a *Probationer* who is being trained elsewhere in drawing and design may take one year's complete course of Lectures and Classes in the A.A. Division I.; while a *Student* similarly circumstanced may take one year's complete course of

Lectures and Classes in the A.A. Division II.—as described in the *Brown Book* just issued.

But neither Probationers nor Students of the Institute should allow themselves to be misled into the belief that preparation for the Intermediate or for the Final Examination can be accomplished in the space of one year, even under the auspices of the Architectural Association. If they attempt this, no matter how clever they may be, they will most assuredly fail to pass. Year by year, from 1882 to the present day, the examination tests imposed by the Institute Board of Examiners have steadily developed, and increased in force and efficacy. The "testimonies of study" alone demand the unremitting attention and continuous labour of many months; and some idea of the character of the Intermediate and Final Examinations of the Institute may be obtained by outsiders from an inspection of the several series of testimonies of study which were rejected last year and this by the Board—to the dismay of too confident applicants for admission to those examinations. Whatever of laxity may have been permitted in the early years after candidature for the Associateship depended upon passing an examination, there is none now. To pass the "Intermediate" or to pass the "Final" at the present time is a far more serious ordeal than the opponents of examination, or even some Probationers and Students, are willing to believe; and the sooner the fact is known and understood, the better for all the parties concerned.

Following up a recent article [p. 577], entitled "The Examinations: Session 1895-96," it may be assumed that a youth, resident in London, having had a so-called good education, and possessing tastes, capacities, and worldly position which fit him for the art, profession, and business of an architect, is articled, say, for three years to a metropolitan practitioner. Say, moreover, that he is fifteen years of age, and that he then claims and obtains full or partial exemption from sitting for the Preliminary Examination; or that he sits and passes it. His name is at once entered in the register as a Probationer. He then applies for admission to the Architectural Association, and is duly elected a member. At sixteen he takes the first year's study as laid down in the time-table [p. 671] for *Probationers*; and at eighteen has completed the two years' course, having made some, if not all, of his "testimonies of study" in the A.A. Lower Studio. He submits his testimonies, and if these be approved he sits at the Intermediate Examination, passes, and becomes a "Student R.I.B.A." at the close or a little after the termination of his articles. Another year elapses, during which he may have travelled, or entered another office as a junior assistant or "Improver"; he may have attended lectures on Modern Design (Mr. Statham's course), on Practical Design (Mr. Beresford Pite's course),

on Materials (Professor Kerr's course); or he may have taken up Quantity Surveying (Mr. Leaning's class), to his and his clients' ultimate advantage. All of these and several others are described as "Extra Subjects." Again, he may have availed himself of the facilities for acquiring technical knowledge offered by the class for Sketching and Measuring, and by the Discussion Section. But, whatever he may have done in an interim of freedom, he is now between nineteen and twenty years of age; and he should proceed to take the first year's study as laid down in the time-table [pp. 673-74] for *Students*. He will thus complete his second two years' course at twenty-one years of age, or at least during his twenty-second year; and before he is twenty-two he can enter for the Final Examination, qualifying for candidature as Associate, and on election for the certificate or diploma of "A.R.I.B.A." As in the former case, his testimonies of study will have been made under the eyes of competent instructors and well-known visitors of artistic distinction, in the Upper Studio; and there ought to be few, if any, of such testimonies below the standard of excellence required by the Institute Examiners.

#### Education in Edinburgh and Glasgow.

The Glasgow Chair of Architecture, established this year [p. 420] by the Governors of the Glasgow and West of Scotland Technical College, and filled by Professor Gourlay [A.], will probably be followed, ere many more years have passed, by the establishment of a similar Chair in the University of Edinburgh. The Chair of Fine Art in that University, filled by Professor Baldwin Brown [H.A.], has existed for some time; and it is gratifying to learn that the Senatus Academicus and the University Court have recently sanctioned the delivery during the next Summer Session of a Special Course of twenty Lectures upon Architecture, to be given by Mr. S. Henbest Capper [A.], M.A. The Course will cover the work required from Probationers in Divisions III. and IV. of the Intermediate Examination, and also in the Testimonies of Study (Science Section) required from Students for admission to the Final Examination.

An innovation of the Curriculum at Glasgow [p. 676] is the establishment of Day Classes, to be held twice a week from 9.30 until 12.30, in addition to the Evening Classes, which have been long in existence, and are now increased in number and importance.

#### The "Curves" of the Parthenon.

In the interesting communication [p. 688] from the author of *Architecture for General Readers* on the review of his book by Professor Baldwin Brown [H.A.] in the JOURNAL [p. 587], and in the Reviewer's reply [p. 671], reference is made to the "discovery" by Mr. Penrose of the Parthenon

curves; and in a fashion which, though only a slip of the pen by the accomplished writers, is likely to mislead many who know less of the facts relating to it than they. It would be more correct to state that optical refinements in the architecture of the Greeks were "discovered" by John Pennethorne, author of *The Geometry and Optics of Ancient Architecture*, a great work produced in 1878, with the assistance of Mr. John Robinson. The former left England in 1830, and, having spent a winter in Rome and a few months at Naples and in Sicily, embarked for Athens in 1832. After a minute study of the buildings on the Acropolis, especially of the coloured decorations remaining upon them, he left for Thebes in Upper Egypt, for the purpose of comparing the Egyptian and the Grecian temples—a comparison which convinced him that the origin of the ornaments employed in Grecian architecture and the Grecian ideas of colour were derived from the same Egyptian source. John Pennethorne, a brother of Sir James, returned to England in 1835. On his way home he stayed at Athens to study the entasis of Grecian columns, the curved profiles of the capitals and of the mouldings; and then he "saw no reason to doubt the assertion of Vitruvius, that the horizontal lines were all convex lines." He paid a third visit to Athens in 1837, when he learnt that a German architect, resident there, had also observed a certain amount of convexity in the upper step of the Parthenon, which the French architect, J. B. C. Lesueur, attributed in his *Histoire et Théorie de l'Architecture* [8o. Paris, 1879] to a sinking of the foundations at each extremity. Suffice it that Pennethorne first published the result of his Athenian investigations in a pamphlet entitled *Elements and Mathematical Principles of the Greek Architects and Artists*, 8o. Lond. 1844. To that result Mr. Penrose referred on receiving the Royal Gold Medal in 1883, when he said: "It was my fortune to have lighted upon what might be called an unworked mine in Greek architecture. It was surveyed, indeed, by Mr. John Pennethorne, who had been two or three years earlier than myself in Athens, and through whom I heard in the first instance of this most remarkable feature." It was in February 1848 that Mr. Penrose, who was in Athens in 1845, read his first important Paper before the Institute, on the "Geometrical Lines and Optical Corrections of the Greek Architects." Furthermore, he referred in the first edition of his *Principles of Athenian Architecture*, fo, Lond. 1851, to the matter thus: "There is a long interval between the time of Vitruvius and that of the first notice of the fact upon the spot, and it was not until the year 1837 . . . that the curvature was discovered by Mr. John Pennethorne, an English architect, then at Athens." That, at the present time, there should be any

misunderstanding of the position would be a cause of regret to the President, Mr. Penrose, with whose concurrence this is inserted.

#### The Old Cathedral of Geneva.

The story of the Cathedral of Saint-Pierre of Geneva is told, in a most interesting publication, in three fascicules, admirably illustrated, issued by the Association for the restoration of that edifice. These, with some sixteen photographs showing the state of the Cathedral prior to 1889, the course of the restoration, and the finished work, were presented a short time ago by Monsieur Viollier [*Hon. Corr. M.*], of Geneva, the architect of the Cathedral. A short account of the building, given in a letter received from him, may induce members to look at the photographs and the three brochures accompanying them. M. Viollier's letter is as follows :—

L'Eglise de Saint-Pierre de Genève, par ses relativement petites dimensions et la simplicité de son architecture, ne peut pas prendre place à côté des grandes cathédrales dont le moyen-âge a couvert l'Europe. Elle offre cependant un vif intérêt architectural pour celui qui est appelé à la voir de près. Son histoire est presque inconnue ou très-problématique. Les documents authentiques font défaut presque jusqu'à nos jours, et les archéologues risquent d'y user leur science en cherchant à lire son histoire sur ses murs.

Tant de causes diverses en ont trouble la conception primitive, tant d'époques et d'artistes différents ont dû y mettre leur influence et leurs mains, qu'il est très-difficile de suivre la marche de sa construction et de ses reconstructions. Et cependant le sentiment que l'on éprouve en entrant dans la nef est celui d'une excellente harmonie de lignes et de proportions; on subit une impression de grandeur et de tranquillité qui ne se retrouve pas dans beaucoup d'églises gothiques qui inquiètent souvent plus qu'elles n'élèvent par leurs hardiesse. Actuellement l'intérieur est dans un bon état de conservation, mais l'extérieur de l'église, nefs, abside et tours, ont souffert au plus haut degré des injures du temps et plus encore des réparations des hommes.

Depuis la Réformation jusqu'au milieu du siècle passé les seuls travaux d'entretien ont consisté à enlever ce qui tombait en ruine. Au milieu du dix-huitième siècle la façade principale menaçant de s'écrouler, on la reconstruisit sous la forme d'un vaste portique corinthien. Les façades latérales ont été consolidées par des contreforts et des arcs-boutants, genre romain qui faisaient le plus triste effet combinés avec les fenêtres romanes et ogivales de la nef et des bas-côtés.

Notre siècle est en architecture un siècle de "Restaurations," une période archéologique; partout on relève les vieux monuments et on le complète tant bien que mal dans le style et l'esprit des anciens constructeurs. Genève n'a pas voulu rester en arrière: une société s'est formée pour conserver et faire revivre le monument le plus intéressant de notre passé. En dépit de difficultés techniques et financières, une notable partie du travail est déjà derrière nous.

Il vous a été transmis quelques photographies de l'état ancien de l'église et des travaux exécutés. Si ces travaux intéressaient les membres de l'Institut, je serais heureux de les tenir au courant de ce qui est fait et se fera dans l'avenir.

#### The Modified Reservoir at Philæ [p. 621].

*L'Architecture*, the Journal of the Société Centrale des Architectes Français, publishes in its

issue of the 14th inst. the reply of the French Minister of Foreign Affairs to the memorial of the Société Centrale on the subject of the Nile Reservoir at Philæ, or, to use the words of the Paris journal, "au sujet de la destruction dont étaient menacées les admirables ruines antiques de l'île de Philæ." The letter of the President of the Society, M. Charles Garnier [*Hon. Corr. M.*], to M. Hanotaux was duly published in the JOURNAL [p. 621], and the Minister's reply to him is here given :—

Paris, le 3 septembre, 1895.

MONSIEUR,—Vous avez bien voulu me faire part de la protestation formulée par la Société centrale des Architectes français contre le projet attribué au gouvernement égyptien d'autoriser la création sur le Nil de barrages qui pourraient entraîner la submersion de l'île de Philæ.

Je n'ai pas manqué de prendre bonne note de cette communication et d'en envoyer copie au gérant de l'agence et consulat général de France au Caire.

Je crois devoir ajouter que les études préalables nécessaires pour l'exécution des barrages dont il s'agit sont encore fort incomplètes et ne paraissent pas être sur le point d'aboutir. On ignore, par suite, sur quels points du fleuve seraient éventuellement construits les travaux projetés. De plus, on ne sait pas encore avec quelles ressources cette entreprise pourrait être exécutée.

Quoi qu'il en soit, le ministère des affaires étrangères ne perdrat pas de vue, le cas échéant, les préoccupations légitimes dont vous m'avez fait part au nom de la Société centrale des Architectes français.

Agréez, Monsieur, les assurances de ma haute considération.

G. HANOTAUX.

#### The late James Piers St. Aubyn [F.]

At the General Meeting of the 20th May last, Mr. J. P. St. Aubyn's death, which had occurred at his residence at Marazion, Cornwall, on the 7th of that month, was announced. He was the second son of the Rev. Robert St. Aubyn, and was born at Powick Vicarage, Worcester, on 6th April 1815. Several of his early years were passed at the Vicarage House of Perranuthnoe, a small parish in the west of Cornwall, about five miles from Penzance. He was educated chiefly at Gloucester, and began his professional career in that city as a pupil of Mr. Fulljames. On the completion of his articles he came to London, and in 1851 was appointed to the Surveyorship of the Middle Temple, an office he held until his retirement in 1885.

Numerous churches in various parts of the country were erected from his designs and under his supervision, including All Saints' and St. Luke's, Reading; St. Mary's, St. James's, St. Stephen's, St. Paul's, and St. Barnabas', Devonport; St. James-the-Less, Plymouth; Christchurch, Erith; St. Mark's, New Brompton; St. John's, Penzance; All Saints', Marazion; St. Anne's, Gunnislake, and Halsetown St. Ives' (Cornwall); St. Peter's, Revelstoke (Devon); St. Mary-the-Virgin, Clifton, Bristol; St. Clement's, Notting Hill, and many others. The church of Kilmaloda, County Cork, and the English church

at Dresden are his work, and he was responsible for a large number of restorations and additions to churches in all parts of the kingdom. Of the restoration of the Temple Church, London, which he carried out in conjunction with the late Sydney Smirke, he gave a description in a Paper read by him before the Institute in May 1864, entitled "An Account of the Repairs lately effected at the 'Temple Church, London,'" printed in the TRANSACTIONS, 1863-64. His domestic buildings include new Chambers in the Temple and precincts, and several country houses. He carried out for Lord St. Levan the extensive alterations and additions to the Castle at St. Michael's Mount; and designed numerous schools, school chapels, parsonage houses, and minor buildings of various kinds. In 1885 he gave up the active pursuit of the profession which he had followed with unremitting energy for upwards of fifty years, and retired to Marazion. His connection with the Institute dated back nearly fifty-nine years. He was one of the earliest members balloted for under the original Charter of King William IV., having been elected an Associate on the 27th February 1837. In 1856 he became a Fellow, and served on the Council during the years 1858 and 1859, and again from 1870 to 1872.

St. Aubyn was buried in the little churchyard of St. Michael's Mount. According to his wish, his body was carried over the causeway from Marazion to the Mount by eight carpenters and eight masons in relays of four of each trade.

Mr. Robert Williams [A.] sends the following personal recollections of Mr. St. Aubyn :—

Others have known and worked for and with the late Mr. St. Aubyn far longer than I have, yet I would fain be permitted to pay, in some humble and grateful fashion, my tribute to his memory.

One day, early in our acquaintance, it was my fortune to accompany my chief in a drive from a work in the country, and our conversation turned on architecture. Perhaps because of ignorance, I uttered a somewhat bitter complaint, to the effect that in this country there were no opportunities for the study of architecture save to those who, rightly or wrongly, were put to such studies by parents or guardians who could pay heavy premiums; in short, I complained that the Institute, as representing architecture, closed its doors to students of architecture as such alone. Whereat my old master fired at me in effect, and with true Cornish vigour replied:—"The way in England is open to all. The Institute is not unwilling to recognise merit. Its library is open to students on the recommendation of members; and, if you like, I'll recommend you."

To all who regard architecture from the five-per-cent. standpoint, the above words may mean little, but they meant much to me; and, later on, when within reach of Conduit Street, the kind offer

was gratefully acted upon. The great charm of working for Mr. St. Aubyn lay in the fact that he himself knew his work—blacksmiths, masons, bricklayers, carpenters, &c., often bore testimony to this. He was as much at home when taking up three tiles and putting them in position to explain "lap" and "margin" as he would be in arranging the details of a hammer-beam roof, and explaining why, for an optical reason, the beam should have a slightly upward inclination from the wall. He took a keen interest in the studies at the Art School, and when a certificate or prize was obtained his congratulations were always warm and kindly. Then there were the studies in planning and design. As time permitted, my chief would always criticise these, sometimes ruthlessly enough, and would occasionally improve the fine pencil lines of one's elevation with bold strokes made with a "B" pencil, a particularly black one, which, I half suspected, he kept on purpose for criticisms of that kind.

It is not for me to describe Mr. St. Aubyn's works, although I may say that I have been with him in several counties, have visited churches of his forty or fifty years old to make sketches of some detail as a guide. In his work will always be found strength, good detail, suitable material, and that which seems to me to be a good interpretation and translation, without servility, for modern purposes and usages, of our own unequalled and indigenous architecture. He would frankly confess to a fault. I remember his pointing out a feature which he considered faulty in an earlier work, and explaining why he would not do it again in the same way.

During a severe illness I saw another and a pleasing side of my old master's character. Unable to be at my post, he would come to my bedside, when his kindness and cheery talk about the work did more to help me get well than whole jorams of doctor's stuff. It is not easy to give expression to one's heartfelt thoughts without seeming to exaggerate. Could my thoughts shape themselves into words, I would say that I was drawn to Mr. St. Aubyn because he was strong enough and far enough above pride to repel all that was of mere professionalism.

#### The late John Colson [F.]

John Colson, who died at his residence in Winchester on the 21st ult., at the age of seventy-six, had been a Fellow of the Institute since 1858. He was the son of John Colson, of Hall Court, Shedfield, and served his articles with the late Owen Carter, of Winchester, having as a fellow-pupil the late George Edmund Street. On the completion of his articles he was engaged for a time as assistant in offices in London, and subsequently entered into a partnership at Norwich, which, however, turned out a failure. Returning to Winchester he started practice on his own

account; and, fortunate in securing the goodwill and influence of Dr. Sumner, the then Bishop of Winchester, soon laid the foundation of a very successful business. His practice lay principally in church architecture, and he designed and carried out the building and restoration of over 120 churches in Winchester and neighbouring dioceses, including new churches at Awbridge, Herriard, Fair Oak, Morestead, Ovington, Portsdown, Ransdale, Sholing, Shalden, Stockbridge, Swanmore, Soberton, Bradley, Sheldfield, Lockerley, St. Paul's (Wyke), and Hedge End, and extensive alterations and additions at Highfield (Southampton), Micheldever, &c. Other important works of his were the Diocesan Training College, Bishop Morley's College, and additions at Hoddington House for the late Lord Basing, besides many schools. He was appointed architect to the Dean and Chapter of Winchester in 1855. His chief work upon the Cathedral fabric consisted in the restoration of the west front about thirty years ago, and of the roof of the south transept.

#### Additions to the Library.

From Messrs. Crosby Lockwood & Co. has been received a useful little work, published by them in 1886, entitled *Trusses of Wood and Iron*: being practical applications of science in determining the stresses, breaking weights, safe loads, scantlings, and details of construction, with complete working drawings, by William Griffiths, Assistant Master of Tranmere School of Science and Art.

*Der Zustand der Antiken Atheneischen Bauwerke auf der Burg und in der Stadt*, by Professor Dr. Josef Durm [Fo. Berlin, 1895 : Wilhelm Ernst & Sohn], has been received from the publishers. The author, Signor Luca Beltrami [Hon. Corr. M.], has contributed a well-illustrated little work, *La Certosa di Pavia: Storia (1896-1895) e Descrizione* [Milan : Ulrico Hoepli, 1895], together with another recently published work of his, *Ambrogio Fossano detto il Bergognone* [Milano : Tip. Lombardi, 1895]. *Le Louvre et son Histoire*, by Albert Babeau, containing 140 illustrations, has been purchased.

Mr. John Hebb [F.] has presented to the Loan Library *Shottesbrooke Church, Berkshire*, being a series of illustrations of the church and its monuments, together with descriptive notes by Arnold Bidlake Mitchell [F.] [London : David Low, 1885]; and to the Reference Library a small pamphlet, entitled *A Short Account of Spring Gardens, and a List of Documents and other Objects Exhibited. Plaxtote: a Kentish Borough*, by J. Tavener Perry [A.], the second pamphlet of the "Bye-Way History" series [London : B. T. Batsford], has been received from the author. A Paper, *On the Discovery of some Remains of the Chapter-House of Beverley Minster*, communicated to the Society of Antiquaries by Mr. John Bilson, has also been received from the author [Westminster : Nichols

& Sons]. Mr. E. H. G. Brewster has sent a Paper on *Patents for Inventions*, read by him before the Civil and Mechanical Engineers' Society on the 18th January 1894 [London : Published by the Society]; the Executive Council of the Imperial Institute the *Supplement* to the Year-book of that Institute, comprising a Statistical Record of the Resources and Trade of the Colonial and Indian Possessions of the British Empire, compiled chiefly from official sources.

In accordance with the testamentary directions of the late Ewan Christian, a selection has been made from his books of such as were not contained in the Institute collections, and forwarded by Mr. C. H. Purday [A.], one of his executors. The following among them have been added to the Reference Library:—

- Christian (E.) *St. Peter's Church, Wolverhampton*. Pamph. 8o. Wolv. 1852.
- Wilson (W. C.) *Helps to building Churches, &c.* 8o. 1842.
- Hall (F.) *St. Peter's Church, Wolverhampton*. 8o. Wolv. 1865.
- Gwilt (J.) *Equilibrium of Arches*. 3rd ed. 8o. Lond. 1839.
- Reid (D. B.) *Ventilation*. 8o. Lond. 1844.
- Billings (R. W.) *Kettering Church*. 4o. Lond. 1843.
- Dart (J.) *Canterbury & York Cathedrals*. Fo. Lond. 1755.
- Dart (J.) *Westminster Abbey (plates)*. Fo. Lond. 1755.
- Archæologia Cantiana*. (11 vols.) Vols. viii., ix., xi.-xix. 8o. Lond. 1872-92.

#### The following to the Loan:—

- Wilson (F. R.) *Churches of Lindisfarne*. 1a. 8o. Newc. 1870.
- Paley (F. A.) *Baptismal Fonts*. 8o. Lond. 1844.
- Neale (J. P.) and others. *Westminster Abbey*. Fo. Lond. 1856.

- Boutell (C.) *Monumental Brasses*. 1a. 8o. Lond. 1849.
- Hadfield (J.) *Ecclesiastical, Castellated, and Domestic Architecture of England*. Fo. Lond. 1848.

The following have been received from their respective Societies: *The Journal of Hellenic Studies*, vol. xv., part i. (Society for the Promotion of Hellenic Studies); *Transactions of the Edinburgh Architectural Association*, vol. iii. No. 1; *Transactions of the Essex Archæological Society*, vol. v. part 3; *Journal of the Sanitary Institute*, vol. xvi. part ii.; and *The Sanitary Inspectors' Journal*, being the first number of a new series.

#### Examinations at Allied Centres.

Should there be, as appears probable, a sufficient number of applicants, a Preliminary Examination qualifying for Registration as Probationer, and a Final Examination qualifying for candidature as Associate, will be held in Liverpool this November under the charge of the Liverpool Architectural Society. The "Preliminary" is timed to take place on the 12th and 13th, and the "Final" on the 22nd to the 30th November. Applications for admission to the former will be received in London not later than the 19th prox.; and the Testimonies of Study required from Students applying for admission to the latter must be submitted in London on or before the 1st November.

The Northern Architectural Association will also hold an Examination in Newcastle, this

November, if the number of applications made by residents in the locality, and accepted by the London Board of Examiners, justify it.

## REVIEWS. XXXI.

(87.)

### COLOGNE, NEW AND OLD.

WITH A COMMENT ON LONDON'S IMPROVIDENCE.

*Köln und seine Bauten. Festschrift zur VIII. Wanderversammlung des Verbandes deutscher Architekten- und Ingenieur-Vereine in Köln vom 12. bis 16. August 1888. Herausgegeben vom Architekten- und Ingenieur-Verein für Niederrhein und Westfalen. Roy. 8o. Köln, 1888.*

Not the least agreeable incident of the too short and hurried visit to London in May last of members of the Architects' and Engineers' Society of the Lower Rhine and Westphalia occurred on the occasion of the architect-members being entertained at dinner by the Council of the Institute [p. 505], when Herr Stübben, Vice-President of the Society, presented to Mr. Penrose for the Library, beautifully bound and suitably inscribed, the handsome volumes the subject of this notice. The value of the presentation is enhanced by the fact that these volumes are not published for general circulation, but are the sole property of the Society, and therefore not otherwise obtainable.

The volume relating to Cologne was produced on the occasion of the Eighth Congress of the United Architects and Engineers' Societies of Germany, which met in that city in 1888. Towards its production the co-operation of some thirty-six writers on special subjects has been made available, under the editorial direction of Herren H. Wiethase, K. Schellen, and J. Stübben, to whom, and probably especially to the latter, great praise is due for the manner in which the merits of the ancient and modern city have been displayed in the 806 pages of this portly volume, the concise and practical text being supplemented by no fewer than 599 illustrations and 8 plans. In this volume of the JOURNAL [pp. 506-508] a notice has already appeared of *Strassburg und seine Bauten*, which was produced by the Architects and Engineers' Society of Elsass-Lothringen on a similar occasion of a meeting at that city. These volumes do much honour to the civic and patriotic spirit of the Societies, and form extremely valuable records of the history and development of these monumental cities.

In *Köln und seine Bauten* Cologne is dealt with in a manner similar to that adopted in the more recent work on Strassburg, and divided broadly into two parts: (1) the architectural history from the earliest period; (2) the buildings, work, and situation of the present day.

The first part, which occupies 212 pages, with some 150 illustrations, is subdivided into six sections, dealing with the site and position of the city,

its Roman settlement, and Colonia Agrippina, or more fully Colonia Claudia Augusta Agripinensis, the Carlovingian period to 1220, the Gothic period, the Renaissance, and the modern period 1800-1880. The second part, in five sections, deals exhaustively with all that relates to the modern development of the city, its public monuments, private and commercial buildings, described in twenty-six chapters by specialist writers on each head—as the city plan and its enlargement; street construction, lighting, water-supply, drainage, public gardens, and monuments; wharves, railways, street tramways; postal buildings, schools and parsonages, museums, military edifices; law courts, &c.; infirmaries, bath establishments; abattoirs and markets; theatres, &c.; club houses, hotels and restaurants; private dwellings; business premises; commercial buildings, and factories.

To those who recollect the old city of some forty-five or more years ago the change and development, especially within the last twenty years, are indeed astonishing. The closely walled city, strongly fortified, entered only by winding roads across deep ditches and through narrow portals, has assumed a very different aspect. The old walls have disappeared, and a new enceinte has been formed. A belt of new town has been added, 700 yards in width and nearly four miles in length from north to south, around the western side of the city from Rhine shore to Rhine shore, which constitutes the *Stadtweiterung*, and forms the most interesting feature of its recent development.

This creation of a virtually new city has been attained through the happy circumstance of the old fortifications having become obsolete, and the construction of a new enceinte. In 1881 the city authorities arranged for the purchase from the German Government of the military works which then encircled the city, to be handed over to them in four sections, for a total price of 120 million marks—say £600,000. The demolition of the first section was commenced on 11th June 1881, and the fourth section was handed over to the city in June 1885.

On the site of these demolished works has been constructed a noble boulevard, or Ringstrasse,  $3\frac{3}{4}$  miles in length—or rather a series of ten boulevards, or Rings, varying in width from 104 feet to the extreme of 370 feet, in which broad pleasure-grounds form the central feature. These splendid Rings are laid out in a varied manner, each having its special individuality, with double, triple, and quadruple rows of trees, central promenades, ornamental gardens, and pleasure-grounds. The buildings bordering them are similarly varied, those on the southern sections being villas set back with gardens in front.

The expenditure on laying out the Rings and incidental works has amounted to another twelve million marks—or, together with the cost of pur-

chase, about £1,200,000. The wisdom of the bold scheme adopted is amply shown by the fact that not only does the city derive incalculable benefit from the demolition of the old walls and the construction of the new Rings, public gardens, &c., but by the sale of the sites created by the work no less than twenty million marks—£1,000,000—had been obtained by 1888, and probably the plots unsold would fully make up the balance. Thus the city has gained the benefit of the improvement practically without cost.

Besides the land, the site of the military works acquired by the city, there was a wide zone nearly three times the area outside these works, and extending up to the new enceinte, which had been subject to the military law forbidding the erection of buildings thereon. Under the new condition of things this became valuable building land, and it has been laid out, under the direction of the city authorities, in broad and direct tree-planted streets with ample open spaces; and, with the land acquired from the State, it forms the great belt of new city, 700 yards in width, surrounding on the land side the old city.

Three of the chief gates of the old city have been preserved, and incorporated with the design for laying out the new zone: the Severinsthor on the south, the Hahnenthor on the west, and the Eigelsteinthor on the north. There have also been preserved the Ulrepforte, the Bayenturm, and the Cunibertsthürmchen, and three lengths of the ancient wall, each from 70 to 120 yards in length, with the Bottmühlenthurm, the Ulredenmal, and the Gereonsmühle, which together formed the most interesting features of the old works.

The contrast between what has been done in Antwerp, Strassburg, Cologne, and almost every city of Europe within the last twenty years, and what has not been done in London, which claims to be the metropolis of the civilised world, is indeed disheartening. The greatest aim of the Metropolitan Board of Works appears to have been to construct more or less "convenient cab routes"—laid out without the slightest regard to the beauty of the city, and so restricted in scope that only mean, unprofitable buildings could be erected on the cleared sites bordering them. Through apathy or ignorant indifference, they allowed the great boulevard of the New Road—a road protected by an Act of Parliament they permitted to be repealed—to become degraded to the mean, sordid, and miserable condition of the present Euston Road, Pentonville Road, and City Road, which constitute for the most part a disgrace to the metropolis. The Board and their predecessors thus sacrificed an opportunity of embellishing London never to be regained. The like policy of indifference has led to the destruction of the fine open roads on the south side of the river and generally around the metropolis, the same spirit

of mean greed having been allowed full swing without restraint.

Happily, the London County Council have now appreciated the evil permitted or encouraged by their predecessors, and credit is due to them for the steps taken to prevent its continuance. As regards real improvements, however, little has been done. The ratepayers' money has been squandered in seeking to establish principles of taxation—an imperial rather than a local task—to impose systems of betterment areas tending to the further spoliation of the ruined victims of the districts bordering on improvements. Necessary improvements—one at the least of which so unwisely abandoned may have now become practically impossible—they have declined to proceed with unless their political doctrines received the authority of the Legislature. The insane folly of the sacrifice of the Coal Duties has no doubt cramped the financial position, but it does not justify the waste of public and private money on the persistent but happily always defeated endeavour to attain political ends.

Meanwhile district after district is being added to London, and covered with mean tenements, which are erected without any regard to the convenience or beauty of the city. Each landowner does simply what seems right in his own eyes, controlled only as regards the width of the streets, and the very minimum of necessity of construction required by the Building Act. The rapacity of the greedy speculator covers every possible foot of land. His houses in 40-feet streets are built close up to the edge of the road, his land is laid out without regard to anything but his own profit, and no provision is made for open spaces for the recreation or health of the occupiers of the tenements out of which he makes his profit.

The London County Council, by their excellent work as regards parks and open spaces, have shown that they can do much for the health and pleasure of the inhabitants of this overcrowded metropolis. Might they not divert some of the energy expended on betterment, taxation of land values, the attempt to intercept the unearned increment and the like, and devise means by which they could obtain power to control the laying-out of building land within their limits, so as to prevent the continuance of the mischief now going on? Might they not secure that all new roads are made part of a general system; that sufficient open spaces are dedicated by the speculator to public use; and, generally, that the owners of estates to be laid out for building, and the speculators concerned therewith, shall be brought under stringent control? Might they not compel owners and speculators, by submission to such regulations, to contribute towards the amenities and convenience of that city by whose existence alone they are enabled to realise their profits? The result of such control would probably be an enhancement

of value exceeding the "sacrifice," as it would be termed, which would be rightly exacted from the owner.

To the great landowners, whom it is now the fashion to decry, London is deeply indebted for having, by their generous wisdom, saved it from becoming a meaner city than it is; and the suggestion now made is simply that a proper control should compel land speculators to make similar sacrifices for the benefit of their fellow-citizens.

In the interests of London it is of urgent importance that speedy measures should be taken to protect it in its suburban regions, and no better work could be done by the London Council than attempting thus to secure convenience and beauty in the laying out of all future building lands.

There is much to be learnt from the experiences of the Continental cities which have in recent years made such rapid advance, leaving London far behind; and, besides collecting this information from abroad, the London Council would do well to inquire what has been done in some English towns—Plymouth, for example—and then apply themselves to formulating a general scheme of control over building operations in London which may help towards the end all good citizens desire—that the metropolis shall no longer lag behind in the course of progress, nor be left still a victim of the greedy speculator.

*Cölner Thorburgen und Befestigungen, 1180-1882. Herausgegeben von dem Architekten- und Ingenieur-Verein für Niederrhein und Westfalen, 1883. Oblong folio, 60 plates and 25 pp. of text.*

When in 1881 the necessities of State doomed to destruction the fortifications forming the north, west, and south enceintes of Cologne, and led to the laying out of the new city, as described in the preceding article, the Architectural Society, to whom we are indebted for the important monograph on the city, desired to preserve a record of works so swept away, and on the sixty plates they have, by general plans and elevations, and by detailed drawings to a larger scale, represented those fortifications, and in particular some eighteen of the old gates and towers.

The reproduction in little of Reinhard's plan of 1752, showing the comparatively small area of the land within the walls then covered with buildings, is interesting, as is also the Plan No. 31, prepared by Herr H. Wiethase, showing the walls of (a) the chief town of the Ubii (oppidum Ubiorum), (b) of the Roman period, (c) of A.D. 950-1150, (d) from A.D. 1150 to 1300, (e) thence to 1880, (f) the new enceinte.

The contributors to this volume have been aided in their work by documents preserved in the city archives and otherwise accessible, of which the earliest is a bird's-eye view drawn on parchment, and dating from the fourteenth century; the next authority is also a drawing on parch-

ment, dated 1570; and so on to 1880, through some twenty-one authorities and collections.

The position of the city on the Rhine, and as a frontier settlement, gave it great importance, and the successive developments of its defences are exhaustively dealt with in six chapters describing the works constructed in successive periods from A.D. 1 to 1882, while the gates and towers occupy eighteen chapters of not less exhaustive historical and technical description. As the new wall built around the city in 1180 was the line of circumvallation cleared away in 1881, this history is, in fact, the history of the development of the defences of a city during this long period.

To Baumeister H. Wiethase, who has edited this work, great credit is due for the admirable manner in which he has fulfilled his labour of love, and utilised the contributions of great authorities and the materials placed at the disposal of the Society by the high officials of the State, and thus produced a monograph of considerable value as an historical record, and honourable in a high degree to the Society under whose auspices it has been produced.

ARTHUR CATES.

(88.)

#### THE MUNICIPAL BUILDINGS OF EDINBURGH.

*The Municipal Buildings of Edinburgh: A Sketch of their History for seven hundred years, written mainly from the Original Records. By Robert Milner, Lord Dean of Guild. With an Appendix suggesting Improvements and Extensions to the present buildings in the Royal Exchange. Fo. Edin. 1895. Printed by order of the Town Council.*

As the annals of an ancient city are in the main but an epitome of the history of the country of which it is the capital, so in like manner the history of its municipal buildings becomes that of its civic life, the record of its corporate existence, and the buildings themselves the outward and visible symbols of its dignity and power. It was so with the Curia of Rome, the Palazzo Vecchio of Florence, the Guildhall of London; though in neither of them, perhaps, is this more strikingly the case than in the Tolbooth of Edinburgh. Within an area of some 20,000 square yards, traversed by one of the most famous streets in the world, and nearly every inch of which is historic ground, in one kind of building or another the government of "Edina, Scotia's darling seat," has been carried on for over seven centuries, and still maintains an honourable administration worthy such a distinguished tradition.

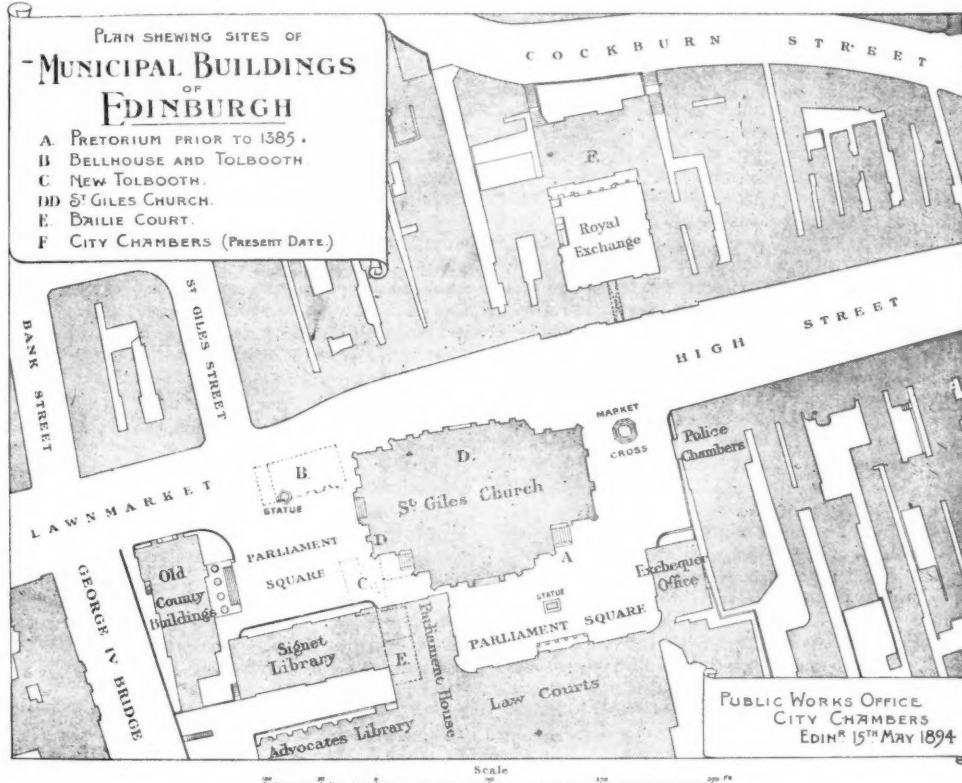
The Lord Dean of Guild—whose very title carries us back some 500 years—out of his abundant knowledge and with the assistance of the original records, sketches in this volume the story of the civic halls of Edinburgh. Beginning with a grant of David I. in 1145, he traces their varying fortunes till he foreshadows the "proposed

"improvements and additions to the present "municipal buildings" contemplated by the Corporation in this year of grace 1895.

The record is so full and circumstantial that to designate it a "sketch" savours of that dry humour his countrymen have always at their service. The book is full of local colour: it meets us on the very threshold, where, on the first page, the distinctive name of "tolbooth," by which Scottish municipal buildings were generally known, is explained to originate in the tol-booth,

for the first time, when John de Quhitness held that office in 1377. In like manner, the "Bailies," or magistrates of the burgh, though now peculiarly Scottish, was not always so. The Bailies were originally the bailiffs or stewards of the King, who collected the dues payable by his burghs, and as the King's representatives became naturally his magistrates to administer justice to the people.

Of the first Tolbooth of Edinburgh little is known beyond its site. It stood at the south-east



or tax-house, the office where the rates and taxes were paid. This office and a room for the deliberations of those entrusted with the government of the town is the starting point of all municipal buildings as such.

Again, the origin of the titles of the chief magistrate and his council is full of interest. It will be a surprise to many that the title of "Provost" was not specially Scotch in the earliest period. "Mayor" seems to have been in general use by the end of the thirteenth century, and in Edinburgh "alderman" was used continuously till 1373. Four years after this "Provost" appears

corner of St. Giles' Church, and is frequently referred to in the early deeds of the latter as the "Prætorium." It perished in the burning of the city by the English in 1385, and nothing seems to be known of it architecturally. Its successor, the famous Tolbooth of Scottish history, and immortalised by Sir Walter Scott in his *Heart of Midlothian*, stood at the north-west angle of the same church, its site being granted to the town by Robert II. in 1386. It must have been built slowly, and probably at uncertain intervals, for apparently the tower was not completed till 1501. It had become ruinous by 1561, and was after-

wards largely rebuilt; but it lived on, though with many changes and renewals, through the storm and stress of four centuries: now as a market and council house, then as a home for the parliament and for the courts of justice, and lastly as a prison, till, long after its glory had departed, it was demolished as late as 1817. Its old entrance door found a resting-place at Abbotsford: the site was cleared, and is now marked by a heart worked in the street pavement.

Mr. Miller gives two views—an exterior and interior—of the building as it appeared during the eighteenth century, when, what with one alteration and another, but little of any architectural interest was left. It is shown as a gloomy, though picturesque, pile of four storeys in height, with a couple of circular staircase turrets and a crow-stepped gable on the south front. The north front, facing the historic High Street, is said to have been more ornate—to harmonise with the adjacent Church of St. Giles. The ground floor was mostly used for booths or shops, and a more modern projection of two storeys high towards the west was from 1785 to 1817 the common place of execution. The interior view shows the hall or guard-room. Architecturally it is of the poorest, but over the fireplace is the following inscription:—

A prison is a place of care—  
A place where none can thrive,  
A touchstone true to try a friend,  
A grave for men alive.

When, in the year 1561, the old Tolbooth became inconvenient for the various purposes to which it was put, and sadly out of repair, Queen Mary ordered the Municipality to build a new Tolbooth, or council house, for the better accommodation of the courts of justice, under threat of their removal to some other town. But, as Mr. Miller says, the history of Edinburgh's municipal buildings for the next seventy years or more is "very confused and perplexing": nevertheless, he does his best to make clear the intricate story. The Town Council were most reluctant to comply with the Queen's orders, and little progress was made with the erection of the building. The works were stopped for want of money; stones "hewn and ready dressed" were taken from a dismantled chapel and used for chimneys and windows; money was borrowed and levies were made, until at last, on Christmas Day, 1564, it appears for the first time as the meeting-place of the Council.

The ruinous condition of the old Tolbooth, moreover, was made good, and it was practically converted into a prison; but during the building of the new Tolbooth we find the astonishing fact that "accommodation was found in the Church of St. Giles both for the Town Council and the Courts of Session." So that for many years after the new Tolbooth was finished and in use,

the portion of the church thus appropriated "formed practically one building with the edifice that had been erected at its south-west corner, with which it was connected by a doorway, so that both church and council house were at different times referred to by the familiar name of Tolbooth." This tendency to cling to the skirts of the church, as it were, is remarkable—first at the south-east angle, then at the north-west, and afterwards at the south-west. The state of things above noted really continued until the "Parliament House" was built to relieve the church of the courts of justice, and Mr. Miller contends that St. Giles' was as much a municipal building as the old Tolbooth, and that all ecclesiastical arrangements were municipal duties. Nor were the clerical and the civic powers above exchanging obligations, for when, in 1633, King Charles commanded the Town Council to prepare St. Giles' as the cathedral church of the newly created diocese of Edinburgh, the congregation of the south-east parish were ordered to meet in the new Tolbooth. So things went on till in its turn the latter, never at any time a great success, was found wanting, and once more the worthy Corporation set about the business of providing themselves with a suitable habitation. Collections were made and subscriptions opened, with the result that the building still standing, and known as the "Parliament House," was erected between the years 1632 and 1640, at a cost of about £10,600.

Tradition says, as in the case of Heriot's Hospital, built during the same period, that its architect was Inigo Jones; but there seems to be about as little ground for the one as the other, with this to the contrary concerning the Parliament House, that in February 1633 the Town Council granted to one James Murray, Master of Works to the King's Majesty, the sum of £1,000 "for drawing up the model for the works of the Parliament and Council House presently intended." This looks remarkably like the architect; and, if so, there must have been fewer of them, or they were much better paid in those days, as at this rate Mr. Murray's commission was 10 per cent. on the outlay. The Dean of Guild gives a plan of the building and a view of the east front, from which we see that it was designed in a late type of Scotch Gothic, with square turrets at each corner, and a circular stair turret at the internal angle of the two wings. No roofs are visible externally, the walls being finished with an ornamental pierced parapet. The principal entrance was from the east, by a handsome doorway surmounted by the Scottish arms, supported by two figures of Mercy and Justice. In plan the building is in the form of the letter L, the main stem containing the famous Parliament Hall, 123 feet long by 42½ feet broad, the interior of which with its fine open timber roof is well known. Though originally divided it is now all in one apartment, and forms

the entrance hall to the Law Courts, as Westminster Hall did to those recently removed. Mr. Miller claims that it was always a municipal building, as it was built and maintained for nearly two centuries by the contributions of the citizens and out of the municipal funds, and that for a similar period it "was the public hall of the town."

Historically it equals in interest the old Tolbooth itself.

The Scottish Parliament Hall was the scene on which most of the history of Scotland was acted for the next seventy years, or found an understudy when the prominent performers were summoned elsewhere. Covenanters and Cromwellians, Jacobites and Williamites, Unionists and Anti-Unionists, held the stage in succession, until Scotland gave up her separate existence in 1707. Each overcame and suffered in turn, and when the steps of counsel had supplanted the steps of statesmen, it was here again that the wisest and strongest and acutest heads in Scotland won their laurels in less tempestuous strife. Could the stones of the old Parliament Hall of Scotland speak, what a roll of matchless names they could number who have spoken within its walls! Here Montrose plotted and spoke in favour of liberty; here his old comrade Loudoun condemned him to death after his gallant struggle for his king. Here Cromwell's troopers lectured the people; here the Commonwealth leaders were feasted; here, also, after the Restoration, a banquet was given to the Royal Commissioner, the Duke of Albany and York. The "bluidy Mackenzie" was master here; and the Duke of York and the King's Advocate, as Mackenzie was then, tortured the unfortunate Covenanters in the halls below with thumb-screw and boot. The eloquence of Belhaven failed to prevent the Union that had been consolidated by English gold, when, in the brutal jest of the Chancellor, Seaforth, there went "the end of an auld song."

We pass over the first forty years of the eighteenth century, when Mr. Miller tells us the Town Council of Edinburgh occupied premises for municipal purposes in the south-eastern portion of Parliament Square, which are referred to in the Records by the name of the "Burrow-Room" and "Council Chamber," and come to the erection of the present city chambers. The ever-growing requirements of the city demanded still further accommodation. After the suppression of the Jacobite rebellion of 1745 the trade of Edinburgh seems to have revived in a remarkable degree, and a project was started for erecting a Royal Exchange, the first stone of which was laid in September 1753. "But," as Mr. Miller quaintly observes, "as was usual with buildings of the kind in Edinburgh, some delay seems to have intervened." He gives us the terms of the contract for the erection of the building, from which it may be gathered that John Fergus was its architect. In the matter of a site the Corporation, this time, seem to have shaken the dust of the church from off their feet, and gone to the other side of the street. By various degrees the Quadrangle on the north side of the High Street was completed, very much as it has come down to our own time. The cost was about £20,000, but we are not enlightened on this occasion as to the

amount of the architect's commission; on the contrary he seems to have been mixed up with the contractors in some extraordinary manner, as one of the "undertakers for the building of the said Exchange," and as far as we can learn it turned out a very unprofitable "undertaking" for them all. By a somewhat curious arrangement the "undertakers" were allowed to dispose of various portions of the new building to private buyers, except that on the north side of the square intended for a Custom House and an office for the Chamberlain, which the magistrates retained in their own hands at a valuation—a creation of vested interests for which, as the sequel shows, the Corporation have since had to pay pretty dearly. Neither the Exchange nor the Custom House was a success as such. The merchants could not be induced to congregate in the one, and in 1809 the Court of Exchequer gave notice that the other would be required no longer. Next year it was resolved to convert this Custom House portion into a New Council Chamber, City Courts, and other offices, and in May of the following year, 1811, the Corporation took formal possession of what has ever since been known as the "City Chambers," and there we may conclude they intend to remain. Whether owing to the non-success of the project financially to the "undertakers," or to difficulties about the acquisition of the ground, "the square was never finally completed, as a building in Writers' Court now more than 200 years old was incorporated into the western side," and there it still stands, but practically the Quadrangle remains as it was built 140 years ago.

Architecturally it is of considerable interest, being in that phase of eighteenth-century Renaissance we may call Scottish Classic. The north side of the Square has an open rusticated arcade or loggia on the ground floor, built for the benefit of the merchants, who would not use it, with a pediment supported by four Corinthian pilasters in the centre of the front above, its tympanum being enriched with the City arms. The Dean of Guild gives a view which shows this, and the old house in the north-west angle above referred to. In proportion and detail it is a very fair specimen of the style of the time; for this reason, as well as historically, we are glad to hear it is to be preserved. A plan of the original Exchange is also given, showing the low arcaded range of shops on the south side, over the top of which a picturesque view of the Square is obtained from the High Street. Internally the Grand Staircase is plain almost to commonplace, appropriate enough, no doubt, to the business of a Custom House, but quite out of keeping as an approach to the City's Council Chamber. The latter is a handsome apartment of good proportions, though architecturally hardly worthy the capital of Scotland.

The long history of seven and a half centuries

is related by the Dean of Guild with great clearness and detail, notwithstanding he facetiously chooses to call it a sketch. It is full of references to authorities and documents, bewildering almost in their profusion, not to speak of the old Scottish dialect of many. It is believed, moreover, by numerous historical notes, with stories of notable events and famous personages: Scott and Chambers are both laid under contribution to add interest to the tale. Mr. Miller is fortunate in his subject; it is not often such romance clings around the dry bones of civic history and musty records. The old Tolbooth lives again as in the pages of *The Heart of Midlothian*. And what a history it is! Among the stirring events that crowd each other during its existence none have a more tragic interest than the departure from it of the magistrates and the citizens to fight and die with the chivalrous King James IV. on the fatal field of Flodden, or the return to it of Randolph Murray bringing back the war-worn city banner when all was lost save honour. From it to his death went the great Marquis of Montrose, to be followed eleven years later by his enemy Argyll—"his heid affixt upone the heid of the 'Tolbuth quhair the Marquis of Montrois wes 'affixit befoir.' When we leave grim history and come to romance,

The real heroine of the Tolbooth is Effie Deans, whose name, with that of Captain Porteous, is well known to all from the pages of the Wizard of the North. . . . Every one who is interested in the legends of Edinburgh has felt the charm of a glamour stronger even than fact by which Sir Walter Scott has interwoven their fates with the history of the Tolbooth; every one has read, and can read there again, the narrative of the attack upon the Tolbooth in 1736 by the mysterious Porteous mob, the burning of its outer door when the iron-studded oak and the iron bars that guarded the gaol refused to yield to force, the snatching of Captain Porteous from the hole by which he had vainly hoped to escape, and the hurrying of the victim to his doom. It is part of the history of Edinburgh and of Scotland at the time.

One could almost wish that Mr. Miller's "sketch" had ended with that auspicious May Day in 1811 when the Lord Provost, magistrates, and Council "walked in procession to the new 'council chambers and city chambers in the 'Royal Exchange, of which they took possession, 'and where all the city business will now be 'transacted.'" What more fitting epilogue could any historian desire? But the mantle of authorship is not so easily laid aside, and the Dean of Guild, having called up the historic past, gives us also a glimpse into the future. The old grievance of inconvenience and want of room is as strong now as ever; the city's requirements again outrun the city's halls; consequently the inevitable "alterations and additions" have begun afresh. Yet the City Fathers, seemingly, have not learnt by long experience to do their enlarging thoroughly and be done with it. Just as in the seventeenth century, so it is at the end

of the nineteenth. Before the Parliament House was begun the Council contemplated a much larger design than was ultimately carried out. Says Mr. Miller, with his dry humour: "Large designs with little performance are quite a feature of Edinburgh history." Once more, in 1886, the Council contemplated a "larger design," nothing short of a "structure entirely new," and the Dean tells the story of the architectural competition that was the consequence. Nothing came of it except hard work to a number of architects and premiums to three of them. The Council apparently got alarmed at their own enterprise, or had not counted the cost. There were no "undertakers" this time to help them out of their difficulties, so, falling back on the "little performance," they have set about adding and altering here a little, and there a little, piecemeal fashion as circumstances and probably funds permit. One cannot but be thankful, in view of such indecision or vacillation of the corporate mind, that in the process the characteristic north side of the old Square is to be preserved as a connecting link between the old and the new; but the municipal courage evidently fails at making a clean sweep of the rest, and building a Quadrangle worthy of, and in harmony with, this central front. Mr. Miller generously furnishes plans and views of what is in contemplation, and truly, except in the matter of height towards the north, it is not a "large design," or a scheme at all worthy of the historic capital of Scotland. One most sincerely commiserates their City Architect, who is carrying out the work, in being hampered with shops, and public-houses, and branch banks, when it is found as a consequence he is obliged to poke the proposed new Council Chamber away to one side in an internal angle, with anything but a stately approach, and to waste the magnificent north front on a refreshment room, hats and coats, lifts, and a couple of committee-rooms!

But with every word in favour of retaining the present site those who love the old city will cordially agree. To desert the historic High Street would be little short of sacrilege. It is truly said that it would be to the citizens "turning their backs 'on their past," as if all the old associations were as nothing compared with some questionable increase of convenience. The regret is that what the Lord Dean of Guild calls "my proposals" are not conceived with that largeness of design, that dignity and breadth of view, demanded by such a site and such traditions. One expects to see the Council Chamber, the real Heart of Midlothian, a noble apartment in a central and distinguished position, not stowed away in an awkward corner, and the Quadrangle treated as an architectural whole, with the order of the centre carried along the east and west sides, and not cut up into vertical sections, as shown in the view of the "proposed building." At the same time Mr.

Miller is right, from "the architectural point of "view," in his feeling for the arcade towards the High Street, only the arches that were probably good enough for some little fifth-rate shops are utterly unworthy as a dignified approach to such a Quadrangle as this might be made. Let us hope the City Architect will yet be given a freer hand, and full advantage taken of an opportunity as unique as it is rare.

The book is extremely well got up. It is printed by order of the Town Council, on excellent paper with large margins, and from clear, finely formed type. The illustrations, all full-page, are most interesting, the plans—emanating from the Public Works Office of the Corporation—being exceedingly well drawn. In the view of the Parliament House, reduced from a Dutch print of 1646, the building is called the "Curia." An interior view of the Parliament Hall might have been added with great advantage. One would commend the perusal of this work to all those interested in the development of municipal government and of the buildings in which it is carried on. The sum of the whole matter, as far as Edinburgh is concerned, cannot be more tersely put than in the closing remarks of the Dean of Guild :—

The present Municipal Buildings in the Royal Exchange have served the City of Edinburgh for nearly three quarters of a century; they succeeded a building, the new Tolbooth or Council Chambers, which had done duty for two centuries and a half; its predecessor, the old Tolbooth, had been the centre of the life of the burgh of Edinburgh—as it then was—for nearly two centuries before; before the old Tolbooth had been erected, another "Prætorium" or Tolbooth had existed, close to the present site, for we know not how many years. With these proposed additions and alterations the new City Chambers should outlive even the longest-lived of its predecessors, and hand down to generations to come the uninterrupted memories and traditions of a burghal and civic life whose headquarters have stuck tenaciously throughout the history of the town to that quarter of the High Street which is the centre of the Edinburgh of to-day, as it was also of the restricted Edinburgh of old.

J. M. BRYDON.

(89.)

#### PUBLIC WORKS, NEW SOUTH WALES.

*Legislative Assembly, New South Wales: Report of the Department of Public Works for the year 1893-94. Fo. Sydney, 1894. Price 10s. [Charles Potter, Government Printer, Sydney, N.S.W.]*

The Report of the Department of Public Works in New South Wales for the year 1893-94 in no way falls behind in interest those of previous years. The information contained in it and the photographs and plans with which it is accompanied make it very instructive reading. The first thing one notices in the Report of the Under Secretary for Public Works to his chief is a very large reduction in expenditure compared with that in former years, owing, as he points out, "to the previous year having been one of unparalleled depression in every department of the country's

"monetary" transactions." The Department of Public Works is divided into six branches—viz., Railways and Tramways; Harbours and Rivers and Water Supply; Government Architect's; Roads, Bridges, and Sewerage; Water Conservation and Irrigation; and Land Valuation. Of these, Railways and Tramways, Roads and Bridges, and Harbours and Rivers, are the chief items of expenditure.

In the Report there is a very complete and an interesting supplementary Report by one of the Assistant Engineers, Mr. E. B. Price, M.Inst.C.E., on the working of light railways of 3-feet gauge in Ireland. Some of these railways were constructed under old Acts of Parliament and some under the Act of 1883, but the results are not encouraging from a financial point of view, the working expenses being very high—as much as 106 per cent. in one case and 74 per cent. in another. But Mr. Price shows that where electricity has been generated by water-power, an electrically worked line costs only one-third of a line worked by steam propulsion, and that where steam-generated electricity is used the cost per mile is only one-half that of steam locomotives. The net result for the year of the working of the railways and tramways in the Colony, in spite of some as yet unproductive lines, shows a profit of 3·46 per cent. for the former and 4·07 per cent. for the latter on the capital cost.

In the Architect's Department much seems to have been done, of which the large and handsome buildings of the Lands Office and the Sydney Hospital are proofs. But the question whether less should be done in new buildings and more in repairs to the works already in existence is becoming one of serious consideration.

A great deal has also been done in the department for the supply of water. The photographs show a large aqueduct formed of two 6-feet wrought-iron tubes upon stone arches across Walli Creek. One would have thought that steel plates would have been lighter and cheaper, but no doubt there is some reason for the use of wrought iron. It is interesting to observe the success which has attended the boring of artesian wells, yielding large supplies of water. Not only has sufficient been found for the respective towns, but a surplus remains for irrigation and other purposes. This success seems to open up a hopeful prospect for Australia, many parts of which are so unapproachable for want of water.

Altogether the Report indicates the growth of the Colony, and the activity which prevails in the promotion of works tending to civilisation; and, although it is passing through a time of severe depression, we may hope that in time the extension of works of the kind will find occupation for their own growing population, as well as for some of that of this country.

RICHARD F. GRANTHAM.



### ARCHITECTURE AT THE EXHIBITIONS OF THE ROYAL ACADEMY.

By R. F. CHISHOLM [F.]

FELLOW OF THE UNIVERSITY OF MADRAS.

THE fact that members of the Royal Institute of British Architects, formerly exhibitors at the Academy, have frequently had drawings, the work of their own hands, rejected, while room has been found for "picturesque" draughtsman's work, and such things as designs for Christmas cards, would seem to indicate that architects have a grievance—a grievance which gains in importance the more closely it is studied; for it touches directly the very existence of Architecture as a profession, apart from pure draughtsmanship and building—a combination already sufficiently strong to absorb a large quantity of actual work, and to diffuse a considerable amount of questionable taste. I venture to think that no professional man should delegate his work to others; whether he be lawyer, physician, painter, sculptor, musician, or writer, up to the last the man himself must be the executant. The profession of architecture should form no exception. The actual designing, the planning and arranging, and finally the accentuation of the useful and necessary in the elevations, must be done by *some one*; and if that some one is not the architect, the architect has ceased to be a professional man, except in a consulting position. Architecture becomes then a *business*, not a *profession*.

The simple questions connected with the treatment of architectural drawings might be met by hanging all works exhibited at the Royal Academy under the names of their respective authors, and not, as at present, under the names of the respective authors of the work portrayed: thus architectural drawing, being a fine art, would be exhibited under conditions in all respects similar to those under which the other fine arts are exhibited. Paintings, statues and engravings must each bear the name of the actual producer of the work, whereas an architectural drawing may be executed from beginning to end by an artist whose name may be entirely suppressed; that is to say, the painter of the portrait of the house is suppressed, so to speak, in favour of the name of the father of the portrait! Further, if this portrait conforms to

preconceived and, as I hope to show a little later, erroneous ideas of what an architectural portrait should be, the genuine work of a Fellow of the Royal Institute of British Architects is set aside, to honour a gentleman who never put pencil or brush to the work which bears his name! It would be difficult to invent any system more calculated to reduce the walls of the architectural room of the Royal Academy to the level of a hoarding for building advertisements—the most serious phase of the matter being that this position arises, not so much from a fair and impartial consideration of the actual merits of the works submitted, as an academical bias in favour of picturesque treatment. This line of action opens a wide door for thought and discussion, because if persisted in, and consistently carried out, architectural designing, the crown of an architect's labours, will in time be annihilated. If architecture be a fine art, there must be something of his own which the architect can exhibit to the public. What is that something—the building itself? Assuredly not, for the architect probably never laid a finger on it. Is it a *picture* of the building when finished? Let us hope not, or the unfortunate architect would have to take a back seat in favour of any accomplished artist. What, then, is that something?

Let us follow carefully the architect's work, from the time he receives his commission to the time when he signs his completion certificate. We see that his work is good, in direct proportion to his powers of invention; the manifestation of his inventive faculty is geometrical designing—a fine art. When we arrive at a clear conception of this, the futility of laying down laws to govern the mental processes becomes apparent; for, while inventing, the mind is much too absorbed to note the procession of thought, even if the operation could be subsequently rendered intelligible to others—which seems doubtful. We see, further, that the making of plans and sections does not constitute a fine art, although these may be necessary, within certain limits, to explain the restrictions and conditions imposed on the inventor, much in the same way as conditions of shape, size, &c., may influence a pictorial representation. A painter may gaze at an empty canvas until he mentally covers it with the composition he invents and afterwards portrays. In like manner an architect looking at the simple lines of a geometrical elevation, the development of well-thought-out plans and sections, invents the treatment he proposes to adopt, which he in his turn eventually portrays. He may think out the whole design in "two dimensions," or three dimensions, or a combination of both; but when he renders his design manifest, he must communicate it in *two dimensions only* to be useful to others—that is, in geometrical projection. This, as I said before, is the manifestation of his

inventive faculty; it constitutes the fine art—architectural designing. It is the only work of his own hands which the architect has to show, and it must be done in some form—let us hope by himself—before the picturesque perspective is “cooked” out of it.

Much misunderstanding might be avoided if we divided architectural work into two distinct classes, calling the pure draughtsman's work architectural *drawing* and the architect's work architectural *designing*, for there is as great a difference between the two as exists between painting and engraving. To produce an architectural *design*, the executant must bring to the task a knowledge of architectural style and command of detail, as well as a knowledge of construction and strength of materials; whereas to produce an architectural *drawing*, a knowledge of drawing and artistic effect is alone necessary. Indeed, the successful architectural draughtsman may be absolutely ignorant that a strut and a tie-beam are subjected to different strains. It by no means follows, however, from these considerations that an architect should not be an accomplished draughtsman; for, other things being equal, it is not too much to say that man's architectural ability is in direct proportion to his artistic knowledge. If the two forms of art be clearly kept in view, the draughtsman's perspective will no more injure the architect's elevation than a “Devonshire Lane” injures an allegorical picture. When an architect with the requisite ability takes the pains to finish an elevation for public exhibition, avoiding competition with professional draughtsmen's work (which he can best do by avoiding picture-making), it is bad policy to set his work aside, as it discourages the particular aptitude which makes a good architect—artistic knowledge and ability.

If we compare the perspective and the elevation from a purely artistic standpoint we shall find the balance of advantages in favour of the elevation. The perspective exhibits truth of aspect from one particular point of sight, but the highest artistic efforts in this line are limited to monotone, for the following reasons. The nature of architectural work demands the use of the line, a purely conventional method of drawing; and having started with this form of expression, harmony is best preserved by continuing it to the finish. The general tendency, from the number of descriptive lines employed, is to produce a *grey* drawing, and the greatest artistic judgment is demanded to avoid grey without at the same time obliterating architectural detail. When this is successfully accomplished, the technical effort is as fine in its way as anything to be seen within the walls of the Royal Academy. Now colour on perfect work of this kind would be as offensive as colour on an engraving, like Macaulay's painted eyebrow on the bust—the added truth which makes the whole a lie. Truth of colour is antagonistic to truth of line, and line

work so treated becomes more pleasing as we subordinate or obliterate the lines, and most pleasing when we have arrived at the truly picturesque with no lines at all—that is, when we have effaced the architecture and left a picture! Architecture is essentially an art of lines, and the attempt to picturesque it will lead to no better result than the attempt to suppress the leading of a stained glass window—to convert an art which must always remain decorative into a pictorial art.

Geometrical drawing, on the other hand, starts with the fundamental truth of the flat surface of the paper, and although we are living in days of impressionism, realism, and colour values, there are still artists who regard a picture more as a decorative object than as a framed hole cut in the wall; and if the highest forms of art find expression in decorative treatment, a purely decorative form of art, like geometrical drawing, would, in skilful hands, attain a higher point of artistic excellence than the purely realistic perspective. The flat surface favours boldness and beauty of line, purity and contrast of colour, and dexterity of execution; and if truth of aspect be valued, it may be adequately shown in a corner, by a perspective drawing not more than three inches square.

It has been said that an elevation misleads the outside public to imagine it a correct idea of the appearance of the building when finished. But this is exaggerating the importance of one appearance only—truth of aspect—for the elevation not only conveys a perfectly correct idea of what the building will be like when executed, but practically puts invisible scaffolds and ladders all over the façade, enabling the observer to reach and inspect every part of it, and to weigh and compare the harmony and proportion of its several features. He who is incapable of understanding an elevation is a man destitute of an educated eye, and it is obvious that the opinion of such a one on the architectural merits of a design depicted in perspective would be valueless. The competition system has done much harm in this direction, by attempting to popularise architectural drawing, and so to gain the approbation of men as incapable of judging design as persons without an ear are incapable of distinguishing one air from another. Educate the public in every way possible and raise the general standard of good taste, but do not lower art until the ignorant imagine they possess an understanding of it. We might, on the same principle, re-write the overture to *Lohengrin* in fat chords, to suit the ears of people devoid of musical education. The excellence of the exhibits in the architectural room of the Royal Academy can never be measured by the extent of its popularity. The section of the public which it is desirable to influence must always remain a small one, as architecture is as much a matter of

education as anatomy or botany, and the present "picturesquing" of the subject at the Royal Academy would find a parallel were a room devoted to botany filled with flower paintings, to the exclusion of those diagrams found necessary to explain the structural part of the science.

Let it be conceded that *architectural drawing* and *architectural design* are two distinct arts, to be treated on their respective merits, it may still be asked what connection exists between architectural design and building. On this point I think we may get some gleams of light by analogy, by considering the work of the constructor, either engineer or builder, with the work, say, of the physician. The labour in both professions may be conveniently divided into three processes—first, the planning, which corresponds to the diagnosis; secondly, the written directions, the prescription; and thirdly, the execution. There is not a vestige of fine art either in the one series or the other; but, if the builder or the engineer happen to be an artist, he adds as much fine art as he is capable of imparting to the second process, the prescription. It is easy to see now how a man may be an architect without being a builder, and *vice versa*. Modern practice and the curriculum of the Institute are both based on the assumption that the artistic aptitude already exists, and to this aptitude is added the knowledge necessary for a sound diagnosis, a scientific prescription, and skilful execution. If, to continue the parallel, physicians were compelled to come before the public, an exhibition of their patients would be as impossible and as futile as an exhibition of architects' houses, for neither made neither! The only thing the physicians could show would be their prescriptions, and provided these are legible—that the chemist can read the prescription, and the artizan the builder's drawing—it matters not a brass farthing how either the one or the other is prepared. Now let us suppose that the physician possessed another power, that he could not only make the patient well, but beautiful in addition, in direct proportion to the beauty of his caligraphy; then the writing of prescriptions would be a fine art! Of course it is as impossible in architecture, as in the sister art of painting, to draw a line and to say, Here building ends and architecture begins, or here daubing ends and painting begins. On the other hand we can say with certainty of many modern works, "Magnificent buildings, but execrable architecture," and of many ancient works (to wit, alas! Salisbury Cathedral), "Exquisite architecture, but 'very ignorant building.' Now the tendency of the present policy of the Royal Academy, in encouraging draughtsman's work to the exclusion of architectural designs, is to lower the position of the physician, so to speak, to such a degree that the public will gradually learn to discard him altogether, and to divide their patronage between

another Madame Rachael and the chemist—the draughtsman and the builder. In saying this, I wish most emphatically to state that I possess the greatest possible admiration for pure draughtsman's work, which is really beyond the scope of the present remarks: it stands on its own merits; it occupies a distinct place in the graphic arts—beside still life studies and fruit and flower painting—and it is as capable of affording the beholder pleasure. It is equally remote from architectural design.

To conclude. The Royal Academy authorities would do well in the first place to rigidly exclude from exhibition, models, photographs, and objects which it is impossible ever to raise to the level of fine arts; secondly, to insist on the actual artist's name being entered on the catalogue as the producer of the work exhibited; and thirdly, to encourage, by fair treatment, the artistic efforts of *bona fide* architects, bearing in mind that if the executive excellence of these gentlemen fail to reach the high level attained by the professional draughtsman, the difference between the two, in artistic merit, is not greater than the difference sometimes found between pictures by Royal Academicians and their less conspicuously hung brethren of the brush.

#### NOTES, QUERIES, AND REPLIES.

##### EDUCATION IN THE HOME DISTRICT.

Not the least gratifying pronouncement made by Mr. T. G. Jackson, A.R.A., in his "Thoughts on the Training of Architects" [p. 636] is the opening sentence that "Throughout the land 'technical schools and institutes are rising, and 'attracting large numbers of students"—a statement repeated, in a description, by Professor F. M. Simpson, of the Liverpool School of Architecture and Applied Arts, and echoed in all parts of the country by critics and inquirers. Furthermore, it is now easy to detect the beginnings of a curriculum of architecture in most of the local museums and science and art schools originally established in a great measure by private enterprise and now assisted by funds at the disposal of municipalities. The change in popular feeling as regards education is everywhere discernible, and in the most unlikely places. Even the capital town on the Medway is alive—nay, enthusiastic—for the cause of science and art, in their most practical forms! Maidstone that, years ago, in the infancy of steam, forbade the South Eastern Railway to approach its walls—and was shunted into a siding for its folly—has established a school which is likely to exercise no little influence over a part of Kent more remote from the metropolis than Oxford or Cambridge, and yet but thirty miles off, as the high road tells. The rise of this school, and the possibilities of its future—

especially as a centre of architectonic instruction—cannot fail to interest both professional men and craftsmen; while the example thus offered to other towns more favoured by position and local industries than Maidstone is manifest. Hence a description of it, kindly furnished by a correspondent, is here given.

**A Short Account of the Foundation of the Science and Art School, Maidstone.**

This School is an example how great things grow out of very small and insignificant beginnings. The first suggestion to form art classes in Maidstone was made by the wife of the present Vicar of St. Philip's, the Rev. H. Collis, who, in his curacy of Banwell, Cambridge, had been Hon. Secretary of the National Schools. A warm supporter of education, and from very early life a great lover of art, he heartily adopted the suggestion to make an attempt to form an art class. Circulars were sent out to the neighbours, and the use of the Picture Gallery at the Museum obtained. The class opened on 29th January 1867, and an evening class was also held the same night. The number of students so increased that it was necessary to obtain larger premises; and in September 1867, through the kindness of the Earl of Romney, the Refectory of the old Benedictine College was hired at a low rent. The light was bad, and only one large room was available, but some very good work was done here. Several ladies and artisans showed considerable artistic taste, and one young man—the son of a local blacksmith—after a few years' instruction, adopted the calling of an artist, some of his oil paintings of Welsh scenery finding their way more than one year into the Exhibition of the Royal Academy.

In 1887, the townsmen, headed by the then Mayor (Mr. W. Day), were very anxious to mark the Queen's Jubilee by some gift to the town. The idea was warmly adopted of raising a sum of money to purchase the ancient palace of the archbishops, then standing vacant, and adapt one side of it for art and science purposes. In a very short time the money was obtained, and the Rev. H. Collis, Honorary Secretary of the School of Art, obtained by subscriptions a sum of £150, which was used to alter and adapt the rooms for the purpose of a school. Science classes were commenced in 1884, and science was greatly developed under the advantages of more accommodation. The number, too, of the students greatly increased. Here the work continued down to the summer of 1894.

It is of interest to say that until the year 1889 these classes had been entirely self-supporting, and were carried on by a general committee. The Technical Instruction Act was passed that year, and the Corporation responded to an application for assistance by an annual grant of £75: this gave a stimulus to the Committee and to the School. Representatives from the Corporation

joined the Committee, and the School became acknowledged as a town institution. The Town Council were urged to use the large help now obtainable from the new-formed County Council to erect a suitable building as a permanent home for science and art, and where both subjects might be pursued under the favourable circumstances of good light and all needful accessories. After long debates the Town Council decided in 1892 to devote the whole grant (except £100 for cookery) derivable from the County Council to art and science.

The needs of the School were sketched out by the Hon. Secretary, and it was decided, after much controversy, that the new building should be erected on ground belonging to the Corporation, and adjoining the Museum in St. Faith's Street. The first stone of the new School was laid in May 1893, and the new buildings were opened by the Duke of Cambridge in October 1894.

The ground floor of the building is devoted to science, and has an electricity lecture-room, Master's workroom, and physical laboratory; a store-room and Science-Master's room, two good-sized lecture-rooms, a large chemical lecture-room, with a laboratory accommodating twelve students at one time; also a room for wood-carving. Over the science rooms are the rooms devoted to art. First there is the Master's private room, then a large elementary art room. Beyond this is the Antique room, then the Modelling room and stores for models; the Painting room and the Life room. All these rooms have an aspect nearly direct north. In the basement are the Engineers' workroom, a large room now used for cookery by the County Council, and the heating apparatus. The whole building is most successfully lighted by electricity.

The effect of this larger and well-adapted building upon the technical education of the town may be estimated by the fact that this first year has seen the number of students more than doubled both in science and art, and it may be hoped that important and excellent work will be done in the years to come. The Honorary Secretary, the Rev. H. Collis, is now assisted by a permanent Assistant Secretary. It is possible that a like history of how some of our great science and art schools have grown to their present importance may be forthcoming, but, perhaps, it seldom happens, as in this case, that the original founder lives to see the results of his efforts. It should not be omitted that the architect and builders of these schools have been students in the early days when the classes were less favourably situated. There were many doubts about the building being too large, and likely to prove expensive, but so far these prophecies have not been realised. The tide of interest is rising in favour of such institutions, and they undoubtedly do much to raise the taste and the moral tone of

young men and women, and to enable England to take her place amongst other nations in these great and developing subjects of science and art.

**University Extension College, Reading.**

From CHARLES STEWARD SMITH [F.]—

I am sure that the College in Reading can be made very useful in preparing architects' pupils. It has been formed by the amalgamation of our schools of Science and Art with the University Extension Association. The development has been extraordinary. In a few years, thanks to the earnest co-operation of Christ Church, Oxford, and of the County Councils of Reading, Berks, Oxford, and Hants, a considerable centre of education has been evolved. Our course of study includes drawing, modelling, perspective, the principles of ornament (junior and senior), design, mathematics (junior, intermediate, and senior), practical geometry, mechanics (junior and senior), physics, construction (junior and senior), architectural design (two courses), and architectural historic ornament.

The College buildings, which date in part from the fifteenth and sixteenth centuries, have recently been adapted to their present use. In addition to lecture and class rooms, they contain a students' library, art studios, and biological, chemical, and physical laboratories. The staff consists of thirty lecturers and assistant lecturers; and, in addition, there are, in each year, courses of public lectures in science, history, and literature by well-known men. The students number about 600, and, for the convenience of those not residing in Reading, there are halls of residence or licensed lodgings under the supervision of the College. The position of Reading, midway between London and Oxford, gives to resident students two advantages: (1) That of having lectures from eminent lecturers who can easily get to Reading from either place. (2) The advantage of being able to pay visits to the public buildings, museums, and galleries both at London and Oxford.

**The Technical School, Bedford.**

From GEORGE HIGHTON [F.]—

There are no courses of architectural study in Bedford or Bedfordshire except such as are afforded, in some sort of way, at the Technical School, under the head of "Design." Not very much is being done in the town of Bedford, one of the greatest educational centres in England; and I often regret the lack of courses of elementary and advanced building construction, in conjunction with drawing, modelling, and design, when we find that there are 850 boys at The Grammar School; 600 boys at The Modern School; 1,475 boys at Elementary Schools.

A paper [*Education and the Arts, in the Library*] which I read a short time ago will give some idea of what I consider would be a step in the right direction; and if only the Institute could forcibly impress this upon the Head Masters, by

representation or otherwise, something might be done to embody an elementary curriculum of architecture with the several studies of the schools. The expense might be a drawback. Still, I think, in an important centre like Bedford, the Institute might well direct its influence and assistance to advance such a result.

**Société Académique d'Architecture de Lyon.  
The late Casimir Echernier, Président d'honneur.**

From CHARLES LUCAS [*Hon. Corr. M.*], Paris—

Né à Albi le 16 février 1818, M. Casimir-Julien-Charles Echernier vint fort jeune à Lyon, où il fut élève de l'École des Beaux-Arts et d'Antoine-Marie Chenavard, le maître incontesté de toute l'école d'architecture lyonnaise du milieu de ce siècle et un professeur émérite autant qu'un architecte des plus complets, que l'Institut de France et l'Institut royal des Architectes britanniques ont tenu à honneur de compter parmi leurs membres correspondants.

NOMBREUSES sont les constructions dues à M. Echernier pendant le grand mouvement qui renouvela et transforma la ville de Lyon sous le second Empire, de 1859 à 1888, et il faut citer parmi elles tout un groupe de treize maisons, rue de la Bourse à Lyon; puis des hôtels et des villas à Lyon et dans les environs de cette ville, dans le département du Rhône, à Saint-Etienne et dans tous les départements voisins; on demanda même à notre confrère des résidences à Wiesbaden et dans le duché de Nassau; aussi la Société centrale des Architectes français couronna-t-elle la carrière d'artiste et de praticien de M. Echernier en lui décernant, au Congrès de 1888, sa grande médaille pour travaux d'architecture privée.

Cependant une grande partie, et peut-être la plus intéressante, de la carrière de M. Echernier fut celle qu'il consacra à administrer et à développer, à Lyon et dans le département du Rhône, les institutions d'enseignement et de beaux-arts, institutions auxquelles il donnait le meilleur de son temps. C'est ainsi que M. Echernier était membre du Conseil des bâtiments civils du département du Rhône, conseil qui a une réelle importance; vice-président de la Commission des Musées et des Beaux-Arts de la ville de Lyon; président de la Commission administrative des Écoles municipales et de l'École nationale des Beaux-Arts de Lyon, et ancien président du Conseil d'administration de l'École professionnelle supérieure de La Martinière.

Les nombreux services, entièrement gratuits, rendus par M. Echernier dans ces diverses fonctions lui avaient valu les palmes d'Officier d'Académie et la croix de Chevalier de la Légion d'Honneur. Mais, plus encore, M. Echernier se dévouait à nos sociétés fraternnelles d'architectes. Il fut le véritable fondateur, et était, avec

M. Gaspard André, président d'honneur de "l'Union Architecturale de Lyon," vaillante société de jeunes architectes encore parfois des élèves ; société datant des grands travaux de Lyon vers 1886-1887, et que nous ne saurions mieux comparer, toutes proportions gardées, qu'à l'Architectural Association de Londres ; en effet, les membres de l'Union architecturale de Lyon entrent le plus souvent, lors de leur trentième année, à la Société académique d'architecture de Lyon, de même que les membres de l'Architectural Association entrent à l'Institut royal des Architectes britanniques ; mais les membres anciens de l'Union Architecturale y restant à titre de membres honoraires continuent d'entretenir avec leurs plus jeunes confrères des relations précieuses pour la tenue et le bon renom de la profession d'architecte à Lyon.

M. Echernier appartenait depuis trente-six années à la Société académique d'architecture de Lyon, la plus ancienne et la plus florissante des sociétés d'architectes des départements et la seule qui puisse montrer, avec un légitime orgueil, la série presque ininterrompue de concours annuels d'architecture et d'archéologie, ainsi qu'une collection de remarquables volumes d'*Annales* auxquels M. Echernier avait collaboré de sa plume et de son crayon. Tour à tour secrétaire, vice-président et président de cette société, M. Echernier devait à la haute estime dans laquelle le tenaient tous ses confrères lyonnais d'en avoir été acclamé cette année président d'honneur, titre que seul, Chenavard, l'un des fondateurs de la Société, le 18 décembre 1829, avait porté avant lui.

M. Echernier était de plus membre titulaire résident de l'Académie des Sciences, Arts et Belles-Lettres de Lyon, laquelle, fondée en 1700, est une des compagnies les plus illustres de l'ancienne France, ne comprend qu'un nombre limité de membres associés émérites, titulaires et correspondants, et a pour sceau "l'autel de Rome" "et d'Auguste," tel qu'on le voit sur les médailles des premiers Césars romains avec cette légende : "Athenaeum Lugdunense Restitutum." C'est comme discours de réception à cette académie que M. Echernier prononça, le 19 juin 1891, ses *Remarques historiques sur l'Architecture lyonnaise aux quatre derniers Siècles*, tableau sommaire démontrant, comme l'écrivit M. Echernier, "le rôle prépondérant de l'architecture dans l'Histoire," et ajoutant : "L'Architecture a été, pour notre cité, le véritable thermomètre de sa vie sociale. Elle en a enregistré les pulsations saines ou morbides, et jusqu'à ses sentiments religieux et mystiques, avec une précision, on peut dire, infaillible."

La Société centrale des Architectes français comptait M. Echernier comme membre titulaire non-résident, et, dès la fondation, en 1884, de la Caisse de défense mutuelle des Architectes, ce confrère, si dévoué aux intérêts professionnels,

s'y était fait inscrire, en étant devenu l'un des trois membres du Comité pour les départements et avait été appelé, il y a quelques mois à peine, à l'une des vice-présidences, en remplacement de feu Dormoy de Bar-sur-Aube.

M. Echernier mourut à Lyon le 25 juillet dernier, et après le service religieux qui fut célébré dans l'église d'Ainay, son corps fut porté au cimetière de la Croix-Rousse, où des discours furent prononcés par MM. Pascalon, président de la Société académique d'architecture, Armand-Caillat, représentant l'École des Beaux-Arts de Lyon, et Vaison, au nom de l'Académie des Sciences, Arts et Belles-Lettres de Lyon, tous trois donnant, ainsi que toute la presse lyonnaise, d'unanimes regrets à notre si aimé confrère.

**The late A. E. Johnson [F.] of Melbourne [p. 625].**

From LLOYD TAYLER [F.], Hon. Sec. for Victoria—

Mr. A. E. Johnson, at the time of his death, filled the position of President of the Royal Victorian Institute of Architects ; during his tenure of which office he not only delivered valuable and interesting lectures to the Institute, but, by his genial manners and hearty interest in all that concerned the advancement of the profession, became exceedingly popular. His death occurred suddenly on the morning of the day following that on which he gave his last lecture, and the sad news was received with sorrow and regret, not only by the profession generally, but by a large circle of intimate friends. The following cutting from the *Building and Engineering Journal* gives particulars of his career :—

Mr. Johnson was born in the south of England, in the year 1821. His father, who held high office in the Devonport dockyards, apprenticed his son when he was sixteen years of age to the sea. He left for the East Indies on board the good ship "Ann," but a seafaring life not being altogether congenial to his tastes, his father persuaded him to relinquish it ; and in 1838 he was bound for five years to a firm of architects, Messrs. Wigg & Pownall, of London. At an early age Mr. Johnson showed his eminent fitness for the profession in which he afterwards secured such notable success. Mr. Johnson subsequently studied in the offices of Sir Gilbert Scott and Mr. Philip Hardwick, afterwards becoming a partner of the late Sir Horace Jones, the City Architect of London ; and, in conjunction with Mr. Pearson, F.R.I.B.A. (the present architect to Westminster Abbey), he erected Weybridge Church in Surrey. In 1852 Mr. Johnson arrived in Victoria and soon obtained an extensive practice in Melbourne, engaging successfully in several public competitions, amongst the most important of which may be mentioned the Melbourne General Post Office and the Church of England Grammar School. He was afterwards connected for several years with the Public Works Department of Victoria, and, besides carrying out his design of the G.P.O. already referred to, he remodelled the Melbourne Custom House, and had charge of all the public buildings in the Melbourne district. He retired from the public service in 1875. . . . Mr. Johnson also held the position of diocesan architect. . . . His association with the Royal Victorian Institute of Architects as President for nearly two years will always be remembered with satisfaction. . . . In

1891 Mr. Johnson made an extended tour through Europe, collecting data for a series of able lectures.

The financial crisis from which Victoria is still suffering leaves very little money available for building purposes, and, in consequence, it still continues a day of very small things even with the leading members of the profession. There is a general consensus of opinion, however, that we have turned the corner; and we are all living in the expectation of a quiet, steady, though necessarily slow improvement in the financial conditions of the community.

"Architecture for the Public" [p. 633].

From Professor BALDWIN BROWN [H.A.], M.A.—

I am sorry that Mr. Statham does not agree with what I said about some architectural questions when reviewing his book the other day. Some of the points he raises are of purely archaeological importance, but that about a building having "a style" as well as "style" in the abstract has enough general interest to make an additional word upon it excusable. Nobody wants to bind an architect down to the mere reproduction of bygone forms, and to compel him to design classical Glyptotheks or Tudor Houses of Parliament, all grammatically correct and cold and uninspiring. It is quite possible to evince freshness of feeling and true originality, while at the same time avoiding that look of fuss and pretence which belongs to work the first object of which is to be unlike everything else of its kind. The truth is that architecture has caught a certain infection of lawlessness from her sister arts of painting and sculpture. These arts, in their revolt from the academic and the classical, have been trying a whole series of experiments with results of very doubtful value, and are showing signs now of a return to the old-established traditions. The architect on his side is trying after fresh qualities and new effects, and objects to any restrictions on his free inventiveness. Yet what he does best in these days is done essentially on the old lines, and where he is most "modern" he is often grievously disappointing. An illustration may be taken from a recent building that has attracted a good deal of attention—the Institute of Chartered Accountants, close to Moorgate Street, City. The great merit of the work is its free, living, but at the same time restrained, treatment of time-honoured classical features. The cornice is admirable, but it conforms to standard precedents. The carved terminal figures along the top of the ground storey are among the best pieces of architectural enrichment of recent times; but why? Simply because they are based on a well-established convention which secures to them solidity and dignity, while they have all the life and animation which a true artist will always impart to everything he touches. Why was the acanthus chosen for the necessary foliage motives, rather

than some native English plant which had never been used before? The acanthus was employed, no doubt, partly from its intrinsic grace and partly because, in that particular position on the building, familiar, and therefore unobtrusive, forms were in better taste than such as would have claimed undue attention from their novel character. And so on throughout the work. Wherever it has as its basis the matured style which in its various phases we call generally the "Classic," it succeeds. When, on the other hand, an effort is made after something modern and striking, as in the heavy frieze of figures all along the front and side, there is an unpleasantly jarring note. These realistically treated people on the frieze are ugly in themselves, and out of all accord with the conventional effect of the well-considered composition of the building. They may be "actual," but they are not artistic.

The straining after novel effects which is observable in not a few good modern buildings makes us value all the more such work as that of Wren, who was content to secure his effects by the most purely architectural means, without any reliance on play of detail, or colour, or any adventitious aids. When I said that a building should have "a style," I meant that the element of restraint, and adherence to well-considered conventions, should play an important part in the design.

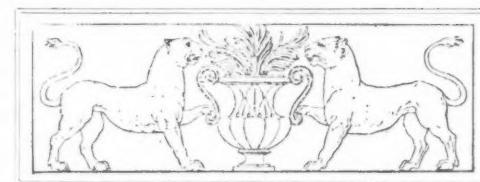
To turn for a moment to archaeological matters, Mr. Statham can hardly believe that I rely for my conviction of the wooden origin of Doric solely on the oaken column Pausanias saw in the Heraeon at Olympia. The argument derived from that building is based on the remarkable discoveries made by the German explorers some twenty years ago, when they found that the columns of the Heraeon appeared to belong to all sorts of different periods of Doric architecture, the only explanation being that the original columns were of some perishable material, and that as each one became unsafe it was replaced by one in stone, fashioned according to the pattern of the particular period when the substitution took place. Pausanias saw the last of the original columns of wood, and in the light of the discovery just mentioned his statement acquires quite a new interest and value.

On the wooden origin of the Classical Orders I would venture to base my theory of the beginning and development of mouldings. It is obvious that the mouldings of mediæval and modern times are all derived ultimately from those of the classical epoch, and that the Normans would never have used the roll moulding had not Roman monuments sent it down as a tradition through the Middle Ages. The mouldings of the Greek temple, especially as we find them in the upper parts under and on the roof of the portico, seem to me very like carpenters' work; but we are not left here merely to personal judgment. Mr.

Statham asserts that he said nothing about the historical origin of mouldings because he knew nothing about it, and nobody else did. Let us see for a moment how this matter stands. The first moulding known in stone architecture is the familiar Egyptian cornice, and the evidence that the roll underneath it was once a wooden rod is quite indisputable. As it was the first, so it was practically the only, moulding known to the ancient world before the evolution of Doric. The early rude stone monuments show no approach to mouldings. There is no sign of mouldings in the earliest stone buildings of civilised man, such as the "Temple of the Sphinx" and the Pyramids in Egypt. The Phoenicians, who were among the most accomplished stone workers known to history, never produced a moulding, though they originated the essentially stone feature of the bossy treatment or rustication of their masonry. If the moulding had been a natural stone form, these great stonemasons of Egypt and Phoenicia would have done more for it than simply use it in one single form, and that a form borrowed from carpentry. Mouldings have their true origin among the Greeks, and are, I am convinced, at first an essentially timber feature.

I may note that with respect to the "curvature of horizontals" no one doubts their existence on the Parthenon, and on many other temples besides, or the immense merit of Mr. Penrose in discovering and measuring them. The point on which Professor Durm and others are sceptical is that of the origin and intention of the curves; and it is one of considerable difficulty as well as interest. I have "laid my eye along" almost all the accessible stylobate steps of Greek temples this side of Asia Minor, and have been completely mystified by the apparently accidental manner in which some of them show curvatures, while others, even in the same building, are completely level. The whole subject needs to be taken up by some one like Mr. Flinders Petrie, who would approach it from the point of view of physiological optics as well as of scientific observation and measurement.

Mr. Statham looks upon Professor Durm as only one among many German theorists of the old traditional school. His *Baukunst der Griechen*, based as it is throughout on his own personal observations and drawings, is a sufficient defence of him from any charge of the kind, and that he knows something practically about Greek architecture is proved by the fact that he has been selected to supervise the technical inquiry into the present condition of the fabric of the Parthenon. Professor Durm does not deny the existence of the curves discovered by Mr. Penrose, though his own measurements make them somewhat less regular. As to whether they were designed or accidental he expresses himself with a very judicious reserve.



## ARCHITECTURAL EDUCATION.

THE CURRICULUM  
OF THE ARCHITECTURAL ASSOCIATION, LONDON.  
First year: for R.I.B.A. PROBATIONERS registered in March 1895 and previous years.

### A.A. DIVISION I.

Date	Hours P.M.	Lectures, Classes, &c.	Masters
OCT. 1895			
1 TU	7.30	{ Elementary Cl. of Design, Preliminary Meeting	} Special Visitors
2 W	—	—	—
3 TH	—	—	—
4 F	—	—	—
5 S	—	—	—
7 M	6.30-8.30	Greek Architecture	R. Elsey Smith
8 TU	6.30-9.30	STUDIO	W. G. B. Lewis
9 W	6.30-9.30	STUDIO	—
10 TH	6.30-8.30	Greek Architecture	R. Elsey Smith
11 F	7.30	A.A. General Meeting	—
12 S	—	—	—
14 M	6.30-8.30	Greek Architecture	R. Elsey Smith
15 TU	6.30-9.30	STUDIO	W. G. B. Lewis
16 W	6.30-9.30	STUDIO	—
17 TH	6.30-8.30	Greek Architecture	R. Elsey Smith
18 F	6.30-8.30	English Architecture	F. R. Farrow
19 S	—	—	—
21 M	6.30-8.30	Greek Architecture	R. Elsey Smith
22 TU	6.30-9.30	STUDIO	W. G. B. Lewis
23 W	6.30-9.30	STUDIO	—
24 TH	6.30-8.30	Roman Architecture	R. Elsey Smith
25 F	8.0	A.A. Conversazione	—
26 S	—	—	—
28 M	6.30-8.30	Roman Architecture	R. Elsey Smith
29 TU	6.30-9.30	STUDIO	W. G. B. Lewis
30 W	7.30	Elementary Cl. of Design	Special Visitor
31 TH	6.30-8.30	STUDIO	W. G. B. Lewis
NOV. 1895			
1 F	6.30-8.30	English Architecture	F. R. Farrow
2 S	—	—	—
4 M	8.0	R.I.B.A. Presidential Address	—
5 TU	6.30-9.30	STUDIO	W. G. B. Lewis
6 W	6.30-9.30	STUDIO	—
7 TH	6.30-8.30	English Architecture	F. R. Farrow
8 F	7.30	A.A. General Meeting	—
9 S	—	—	—
11 M	6.30-9.30	STUDIO	W. G. B. Lewis
12 TU	6.30-9.30	STUDIO	—
13 W	6.30-8.30	English Architecture	F. R. Farrow
14 TH	6.30-8.30	English Architecture	—
15 F	—	—	—
16 S	—	—	—
18 M	6.30-9.30	STUDIO	W. G. B. Lewis
19 TU	—	—	—
20 W	6.30-9.30	STUDIO	W. G. B. Lewis
21 TH	6.30-8.30	English Architecture	F. R. Farrow
22 F	7.30	A.A. General Meeting	—
23 S	—	—	—
25 M	6.30-9.30	STUDIO	W. G. B. Lewis
26 TU	6.30-8.30	English Architecture	F. R. Farrow
27 W	7.30	Elementary Cl. of Design	Special Visitor
28 TH	—	—	W. G. B. Lewis
29 F	—	—	—
30 S	—	—	—

Date	Hours P.M.	Lectures, Classes, &c.	Masters	Date	Hours P.M.	Lectures, Classes, &c.	Masters				
<b>DEC. 1895</b>											
2 M	6.30-9.30	STUDIO	W. G. B. Lewis	7 F	7.30	<b>A.A. General Meeting</b>	—				
3 Tu	—	—	—	8 S	—	—	—				
4 W	6.30-9.30	STUDIO	W. G. B. Lewis	10 M	6.30-9.30	STUDIO	W. G. B. Lewis				
5 Th	6.30-8.30	English Architecture	F. R. Farrow	11 Tu	6.30-9.30	STUDIO	W. G. B. Lewis				
6 F	7.30	<b>A.A. General Meeting</b>	—	12 W	6.30-8.30	Materials and Elementary Construction	F. R. Farrow				
7 S	—	—	—	13 Th	6.30-8.30	Materials and Elementary Construction	F. R. Farrow				
9 M	6.30-9.30	STUDIO	W. G. B. Lewis	14 F	—	—	—				
10 Tu	6.30-9.30	STUDIO	W. G. B. Lewis	15 S	—	—	—				
11 W	6.30-8.30	English Architecture	F. R. Farrow	17 M	6.30-9.30	STUDIO	W. G. B. Lewis				
12 Th	6.30-8.30	English Architecture	F. R. Farrow	18 Tu	6.30-8.30	Materials and Elementary Construction	F. R. Farrow				
13 F	—	—	—	19 W	6.30-9.30	STUDIO	W. G. B. Lewis				
14 S	—	—	—	20 Th	—	<b>A.A. General Meeting</b>	—				
15 M	6.30-9.30	STUDIO	W. G. B. Lewis	21 F	7.30	<b>A.A. General Meeting</b>	—				
16 Tu	6.30-9.30	STUDIO	W. G. B. Lewis	22 S	—	—	—				
17 Tu	7.30	Elementary Cl. of Design	Special Visitor	24 M	6.30-9.30	STUDIO	W. G. B. Lewis				
18 W	6.30-8.30	Materials and Elementary Construction	F. R. Farrow	25 Tu	7.30	Elementary Cl. of Design	Special Visitor				
19 Th	6.30-8.30	Materials and Elementary Construction	F. R. Farrow	26 W	6.30-9.30	STUDIO	W. G. B. Lewis				
20 F	7.30	<b>A.A. General Meeting</b>	—	27 Th	—	—	—				
21 S	—	—	—	28 F	—	—	—				
23 M	—	—	—	29 S	—	—	—				
24 Tu	—	—	—	<b>MAR. 1896</b>							
25 W	Christmas Day	—	—	2 M	6.30-9.30	STUDIO	W. G. B. Lewis				
26 Th	Bank Holiday	—	—	3 Tu	—	—	—				
27 F	—	—	—	4 W	6.30-9.30	STUDIO	W. G. B. Lewis				
28 S	—	—	—	5 Th	—	—	—				
30 M	—	—	—	6 F	7.30	<b>A.A. General Meeting</b>	—				
31 Tu	6.30-8.30	English Architecture	F. R. Farrow	7 S	—	—	—				
<b>JAN. 1896</b>											
1 W	6.30-8.30	Materials and Elementary Construction	F. R. Farrow	9 M	6.30-9.30	STUDIO	W. G. B. Lewis				
2 Th	6.30-8.30	Materials and Elementary Construction	F. R. Farrow	10 Tu	6.30-9.30	STUDIO	W. G. B. Lewis				
3 F	—	—	—	11 W	—	—	—				
4 S	—	—	—	12 Th	—	—	—				
6 M	6.30-9.30	STUDIO	W. G. B. Lewis	13 F	—	—	—				
7 Tu	6.30-9.30	STUDIO	W. G. B. Lewis	14 S	—	—	—				
8 W	—	—	—	16 M	6.30-9.30	STUDIO	W. G. B. Lewis				
9 Th	6.30-8.30	Materials and Elementary Construction	F. R. Farrow	17 Tu	—	—	—				
10 F	7.30	<b>A.A. General Meeting</b>	—	18 W	6.30-9.30	STUDIO	W. G. B. Lewis				
11 S	—	—	—	19 Th	—	—	—				
13 M	6.30-9.30	STUDIO	W. G. B. Lewis	20 F	7.30	<b>A.A. General Meeting</b>	—				
14 Tu	6.30-8.30	English Architecture	F. R. Farrow	21 S	—	—	—				
15 W	6.30-8.30	Materials and Elementary Construction	F. R. Farrow	23 M	6.30-9.30	STUDIO	W. G. B. Lewis				
16 Th	6.30-8.30	Materials and Elementary Construction	F. R. Farrow	24 Tu	—	—	—				
17 F	6.30-9.30	STUDIO	W. G. B. Lewis	25 W	6.30-9.30	STUDIO	W. G. B. Lewis				
18 S	—	—	—	26 Th	—	—	—				
20 M	6.30-9.30	STUDIO	W. G. B. Lewis	27 F	—	—	—				
	8.0	R.I.B.A. Addresses to Students	—	28 S	—	—	—				
21 Tu	6.30-9.30	STUDIO	W. G. B. Lewis	30 M	6.30-9.30	STUDIO	W. G. B. Lewis				
22 W	6.30-8.30	Materials and Elementary Construction	F. R. Farrow	31 Tu	7.30	Elementary Cl. of Design	Special Visitor				
23 Th	6.30-8.30	Materials and Elementary Construction	F. R. Farrow	<b>APR. 1896</b>							
24 F	7.30	<b>A.A. General Meeting</b>	—	1 W	—	—	—				
25 S	—	—	—	2 Th	—	—	—				
27 M	6.30-9.30	STUDIO	W. G. B. Lewis	3 F	Good Friday	—	—				
28 Tu	6.30-8.30	Materials and Elementary Construction	F. R. Farrow	4 S	—	—	—				
28 Tu	7.30	Elementary Cl. of Design	Special Visitor	6 M	Easter Monday	—	—				
29 W	—	—	—	7 Tu	—	—	—				
30 Th	6.30-8.30	Materials and Elementary Construction	F. R. Farrow	8 W	—	—	—				
31 F	6.30-9.30	STUDIO	W. G. B. Lewis	9 Th	—	—	—				
<b>FEB. 1896</b>											
1 S	—	—	—	10 F	—	—	—				
3 M	6.30-9.30	STUDIO	W. G. B. Lewis	11 S	—	—	—				
4 Tu	6.30-8.30	Materials and Elementary Construction	F. R. Farrow	13 M	6.30-9.30	STUDIO	W. G. B. Lewis				
5 W	6.30-9.30	STUDIO	W. G. B. Lewis	14 Tu	—	—	—				
6 Th	6.30-8.30	Materials and Elementary Construction	F. R. Farrow	15 W	6.30-9.30	STUDIO	W. G. B. Lewis				
	—	—	—	16 Th	—	—	—				
	—	—	—	17 F	—	—	—				
	—	—	—	20 M	6.30-9.30	STUDIO	W. G. B. Lewis				
	—	—	—	21 Tu	—	—	—				
	—	—	—	22 W	6.30-9.30	STUDIO	W. G. B. Lewis				
	—	—	—	23 Th	—	—	—				
	—	—	—	24 F	7.30	<b>A.A. General Meeting</b>	—				
	—	—	—	25 S	—	—	—				
	—	—	—	27 M	6.30-9.30	STUDIO	W. G. B. Lewis				
	—	—	—	28 Tu	7.30	Elementary Cl. of Design	Special Visitor				
	—	—	—	29 W	6.30-9.30	STUDIO	W. G. B. Lewis				
	—	—	—	30 Th	—	—	—				

Date	Hours P.M.	Lectures, Classes, &c.	Masters
<b>MAY 1896</b>			
1 F	—	—	—
2 S	—	—	—
4 M	6.30-8.30	Formulas and Calculations	R. Holmes
5 TU	6.30-9.30	STUDIO	W. G. B. Lewis
6 W	6.30-9.30	STUDIO	W. G. B. Lewis
7 TH	—	—	—
8 F	7.30	A.A. General Meeting	—
9 S	—	—	—
11 M	6.30-9.30	STUDIO	W. G. B. Lewis
12 TU	—	—	—
13 W	6.30-8.30	Formulas and Calculations	R. Holmes
13 W	8.30-9.30	STUDIO	W. G. B. Lewis
14 TH	—	—	—
15 F	7.30	A.A. Members' Soirée	—
16 S	—	—	—
18 M	6.30-8.30	Formulas and Calculations	R. Holmes
19 TU	6.30-9.30	STUDIO	W. G. B. Lewis
19 TU	7.30	Elementary Cl. of Design	Special Visitor
20 W	—	—	—
21 TH	6.30-9.30	STUDIO	W. G. B. Lewis
22 F	—	—	—
23 S	—	—	—
25 M	Whit Monday	—	—
26 TU	—	—	—
27 W	—	—	—
28 TH	6.30-9.30	STUDIO	W. G. B. Lewis
29 F	6.30-8.30	Formulas and Calculations	R. Holmes
30 S	—	—	—

<b>JUNE 1896</b>			
1 M	6.30-9.30	STUDIO	W. G. B. Lewis
2 TU	6.30-8.30	Exam. Practice & Revision	—
3 W	—	—	—
4 TH	6.30-8.30	Exam. Practice & Revision	—
5 F	6.30-9.30	STUDIO	W. G. B. Lewis
6 S	—	—	—
8 M	6.30-9.30	STUDIO	W. G. B. Lewis
9 TU	6.30-8.30	Exam. Practice & Revision	—
10 W	—	—	—
11 TH	6.30-8.30	Exam. Practice & Revision	—

**Second Year : for R.I.B.A. Probationers registered in March 1895 and previous years.**

The second year of study would commence with the month of October 1896, and terminate during the second week of June 1897. A Probationer would in this year (A.A. Session 1896-97) prepare the Testimonies of Study which he has to submit for admission to the Intermediate Examination qualifying for the grade of Student. He would therefore require for a second year the use of the Studio, and continue his attendance in the Elementary Class of Design. He would also take the remainder of the Lectures and Classes in the A.A. Division I.—viz. Elementary Physics, as applicable to Building and Calculation of Strengths, &c., under Mr. Holmes; Plane and Solid Geometry, under Mr. Holmes; with Mensuration, Land Surveying, and Levelling, under Prof. H. Adams.

**Fees for the Two Years' Course (exclusive of the A.A. Entrance Fee and Annual Subscription).**

<b>FIRST YEAR.</b>			
			£ s. d.
Studio, and the Elementary Class of Design (68 evenings)			5 5 0
Greek and Roman Architecture (8 lectures and classes)			12 6
Nature of Ordinary Building Materials and the Elementary Principles of Construction (16 lectures and classes)			1 7 6
English Architecture to the year 1550 (12 lectures and classes)			1 0 0
Formulas and Calculations (4 lectures and classes)			7 6
			<u>8 12 6</u>

<b>SECOND YEAR.</b>			
			£ s. d.
Studio and Elementary Class of Design			5 5 0
Elementary Physics as applicable to Building and Calculation of Strengths, &c. (8 lectures and classes)			12 6
Plane and Solid Geometry (8 lectures and classes)			12 6
Mensuration, Land Surveying, and Levelling (8 lectures and field demonstrations)			12 6
			<u>7 2 6</u>
TOTAL—Two years' course £15. 15s.			

**First Year : for R.I.B.A. STUDENTS registered in 1894 and previous years.**

<b>A.A. DIVISION II.</b>			
Date	Hours P.M.	Lectures, Classes, &c.	Masters
<b>OCT. 1895</b>			
1 TU	7.30	(Advanced Class of Design : ) Preliminary Meeting	Special Visitors
2 W	—	—	—
3 TH	—	—	—
4 F	—	—	—
5 S	—	—	—
7 M	6.30-8.30	General History, with Features, Mouldings, and Ornament	F. R. Farrow
8 TU	6.30-9.30	STUDIO	W. G. B. Lewis
9 W	6.30-9.30	STUDIO	W. G. B. Lewis
10 TH	6.30-8.30	General History, with Features, Mouldings, and Ornament	F. R. Farrow
11 F	7.30	A.A. General Meeting	—
12 S	—	—	—
14 M	6.30-8.30	General History, with Features, Mouldings, and Ornament	F. R. Farrow
15 TU	6.30-9.30	STUDIO	W. G. B. Lewis
16 W	6.30-9.30	STUDIO	W. G. B. Lewis
17 TH	6.30-8.30	General History, with Features, Mouldings, and Ornament	F. R. Farrow
18 F	—	—	—
19 S	—	—	—
21 M	6.30-8.30	General History, with Features, Mouldings, and Ornament	F. R. Farrow
22 TU	6.30-9.30	STUDIO	W. G. B. Lewis
22 TU	7.30	Advanced Class of Design	Special Visitor
23 W	6.30-9.30	STUDIO	W. G. B. Lewis
24 TH	6.30-8.30	General History, with Features, Mouldings, and Ornament	F. R. Farrow
25 F	8.0	A.A. Conversazione	—
26 S	—	—	—
28 M	6.30-8.30	General History, with Features, Mouldings, and Ornament	F. R. Farrow
29 TU	6.30-9.30	STUDIO	W. G. B. Lewis
30 W	6.30-9.30	STUDIO	W. G. B. Lewis
31 TH	6.30-8.30	General History, with Features, Mouldings, and Ornament	F. R. Farrow
<b>NOV. 1895</b>			
1 F	—	—	—
2 S	—	—	—
4 M	6.30-8.30	General History, with Features, Mouldings, and Ornament	F. R. Farrow
	8.0	R.I.B.A. Presidential Address	—
5 TU	6.30-9.30	STUDIO	W. G. B. Lewis
6 W	6.30-9.30	STUDIO	W. G. B. Lewis
7 TH	—	—	—
8 F	7.30	A.A. General Meeting	—
9 S	—	—	—
			<b>4 Y</b>

Date	Hours P.M.	Lectures, Classes, &c.	Masters	Date	Hours P.M.	Lectures, Classes, &c.	Masters				
<b>NOV. 1895 (<i>contd.</i>)</b>											
11 M	6.30-9.30	STUDIO	W. G. B. Lewis	15 W	—	—	—				
12 Tu	—	STUDIO	Special Visitor	16 Th	7.0-8.15	Materials: their nature and application	Professor Kerr				
13 W	7.30	Advanced Class of Design	—	17 F	6.30-9.30	STUDIO	W. G. B. Lewis				
14 Th	—	—	—	18 S	—	—	W. G. B. Lewis				
15 F	6.30-8.30	General History, with Features, Mouldings, and Ornament	F. R. Farrow	20 M	6.30-8.0	STUDIO R.I.B.A. Addresses to Students	W. G. B. Lewis				
16 S	—	—	—	21 Tu	6.30-9.30	STUDIO	W. G. B. Lewis				
18 M	6.30-9.30	STUDIO	W. G. B. Lewis	22 W	7.0-8.15	Materials: their nature and application	Professor Kerr				
19 Tu	6.30-8.30	General History, with Features, Mouldings, and Ornament	F. R. Farrow	23 Th	—	Materials: their nature and application	—				
20 W	6.30-9.30	STUDIO	W. G. B. Lewis	24 F	7.30	A.A. General Meeting	—				
21 Th	—	—	—	25 S	—	—	—				
22 F	7.30	A.A. General Meeting	—	27 M	6.30-9.30	STUDIO	W. G. B. Lewis				
23 S	—	—	—	28 Tu	—	—	—				
25 M	6.30-9.30	STUDIO	W. G. B. Lewis	29 W	7.0-8.15	Materials: their nature and application	Professor Kerr				
26 Tu	—	—	—	30 Th	—	Materials: their nature and application	—				
27 W	6.30-9.30	STUDIO	W. G. B. Lewis	31 F	6.30-9.30	STUDIO	W. G. B. Lewis				
28 Th	—	—	—	<b>FEB. 1896</b>							
29 F	6.30-8.30	General History, with Features, Mouldings, and Ornament	F. R. Farrow	1 S	—	—	—				
30 S	—	—	—	3 M	6.30-9.30	STUDIO	W. G. B. Lewis				
<b>DEC. 1895</b>				4 Tu	—	—	—				
2 M	6.30-9.30	STUDIO	W. G. B. Lewis	4 W	6.30-9.30	STUDIO	W. G. B. Lewis				
3 Tu	6.30-8.30	General History, with Features, Mouldings, and Ornament	F. R. Farrow	6 Th	—	—	—				
4 W	6.30-9.30	STUDIO	W. G. B. Lewis	7 F	7.30	A.A. General Meeting	—				
5 Th	—	—	—	8 S	—	—	—				
6 F	7.30	A.A. General Meeting	—	10 M	6.30-9.30	STUDIO	W. G. B. Lewis				
7 S	—	—	—	11 Tu	7.30	STUDIO	Special Visitor				
9 M	6.30-9.30	STUDIO	W. G. B. Lewis	11 Tu	7.30	Advanced Class of Design	Special Visitor				
10 Tu	6.30-9.30	STUDIO	W. G. B. Lewis	12 W	—	—	—				
10 Tu	7.30	Advanced Class of Design	Special Visitor	13 Th	—	—	—				
11 W	—	—	—	14 F	—	—	—				
12 Th	—	—	—	15 S	—	—	—				
13 F	6.30-8.30	General History, with Features, Mouldings, and Ornament	F. R. Farrow	17 M	6.30-9.30	STUDIO	W. G. B. Lewis				
14 S	—	—	—	18 Tu	—	—	—				
16 M	6.30-9.30	STUDIO	W. G. B. Lewis	19 W	6.30-9.30	STUDIO	W. G. B. Lewis				
17 Tu	6.30-9.30	STUDIO	W. G. B. Lewis	20 Th	6.30-8.30	Construction	F. R. Farrow				
18 W	—	—	—	21 F	7.30	A.A. General Meeting	—				
19 Th	—	—	—	22 S	—	—	W. G. B. Lewis				
20 F	7.30	A.A. General Meeting	—	24 M	6.30-9.30	STUDIO	F. R. Farrow				
21 S	—	—	—	25 Tu	6.30-8.30	Construction	W. G. B. Lewis				
23 M	—	—	—	26 W	6.30-9.30	STUDIO	F. R. Farrow				
24 Tu	—	—	—	27 Th	6.30-8.30	Construction	—				
25 W	Christmas Day	—	—	28 F	—	—	—				
26 Th	Bank Holiday	—	—	29 S	—	—	—				
27 F	—	—	—	<b>MAR. 1896</b>							
28 S	—	—	—	2 M	6.30-9.30	STUDIO	W. G. B. Lewis				
30 M	—	—	—	3 Tu	—	—	—				
31 Tu	—	—	—	4 W	6.30-9.30	STUDIO	W. G. B. Lewis				
<b>JAN. 1896</b>				5 Th	6.30-8.30	Construction	F. R. Farrow				
1 W	7.0-8.15	Materials: their nature and application	Professor Kerr	6 F	7.30	A.A. General Meeting	—				
2 Th	7.0-8.15	Materials: their nature and application	Professor Kerr	7 S	—	—	—				
3 F	—	—	—	9 M	6.30-9.30	STUDIO	W. G. B. Lewis				
4 S	—	—	—	10 Tu	7.30	STUDIO	Special Visitor				
6 M	6.30-9.30	STUDIO	W. G. B. Lewis	11 W	6.30-8.30	Construction	—				
7 Tu	6.30-9.30	STUDIO	W. G. B. Lewis	12 Th	6.30-8.30	Construction	F. R. Farrow				
8 W	7.0-8.15	Materials: their nature and application	Professor Kerr	13 F	—	—	—				
9 Th	7.0-8.15	Materials: their nature and application	Professor Kerr	14 S	—	—	—				
10 F	7.30	A.A. General Meeting	—	16 M	6.30-9.30	STUDIO	W. G. B. Lewis				
11 S	—	—	—	17 Tu	6.30-8.30	Construction	F. R. Farrow				
13 M	6.30-9.30	STUDIO	W. G. B. Lewis	18 W	6.30-9.30	STUDIO	W. G. B. Lewis				
13 M	7.0-8.15	Materials: their nature and application	Professor Kerr	19 Th	6.30-8.30	Construction	F. R. Farrow				
14 Tu	7.30	Advanced Class of Design	Special Visitor	20 F	7.30	A.A. General Meeting	—				
				21 S	—	—	—				
				23 M	6.30-9.30	STUDIO	W. G. B. Lewis				
				24 Tu	6.30-8.30	Construction	F. R. Farrow				
				25 W	6.30-9.30	STUDIO	W. G. B. Lewis				
				26 Th	6.30-8.30	Construction	F. R. Farrow				
				27 F	—	—	—				
				28 S	—	—	—				

Date	Hours P.M.	Lectures, Classes, &c.	Masters
<b>MAR. 1896 (contd.)</b>			
30 M	6.30-9.30	STUDIO	W. G. B. Lewis
31 TU	6.30-8.30	Hygiene: Drainage and Water Supply	Max. Clarke
<b>APR. 1896</b>			
1 W	--	--	--
2 TH	--	--	--
3 F	Good Friday	--	--
4 S	--	--	--
6 M	Easter Monday	--	--
7 TU	--	--	--
8 W	--	--	--
9 TH	--	--	--
10 F	--	--	--
11 S	--	--	--
13 M	6.30-9.30	STUDIO	W. G. B. Lewis
14 TU	6.30-8.30	Hygiene: Drainage and Water Supply	Max. Clarke
15 W	6.30-9.30	STUDIO	W. G. B. Lewis
16 TH	6.30-8.30	Hygiene: Drainage and Water Supply	Max. Clarke
17 F	--	--	--
18 S	--	--	--
20 M	6.30-9.30	STUDIO	W. G. B. Lewis
	6.30-8.30	Hygiene: Drainage and Water Supply	Max. Clarke
21 TU	7.30	Advanced Class of Design	Special Visitors
22 W	6.30-9.30	STUDIO	W. G. B. Lewis
23 TH	6.30-8.30	Hygiene: Drainage and Water Supply	Max. Clarke
24 F	7.30	A.A. General Meeting	--
25 S	--	--	--
27 M	6.30-9.30	STUDIO	W. G. B. Lewis
28 TU	6.30-8.30	Hygiene: Drainage and Water Supply	Max. Clarke
29 W	6.30-9.30	STUDIO	W. G. B. Lewis
30 TH	--	--	--
<b>MAY 1896</b>			
1 F	--	--	--
2 S	--	--	--
4 M	--	--	--
5 TU	6.30-9.30	STUDIO	W. G. B. Lewis
6 W	6.30-9.30	STUDIO	W. G. B. Lewis
7 TH	--	--	--
8 F	7.30	A.A. General Meeting	--
9 S	--	--	--
11 M	6.30-9.30	STUDIO	W. G. B. Lewis
12 TU	6.30-8.30	Specifications & Estimates	F. R. Farrow
	7.30	Advanced Class of Design	Special Visitor
13 W	6.30-9.30	STUDIO	W. G. B. Lewis
14 TH	--	--	--
15 F	7.30	A.A. Members' Soirée	--
16 S	--	--	--
18 M	--	--	--
19 TU	6.30-9.30	STUDIO	W. G. B. Lewis
20 W	6.30-8.30	Specifications & Estimates	F. R. Farrow
21 TH	6.30-9.30	STUDIO	W. G. B. Lewis
22 F	--	--	--
23 S	--	--	--
25 M	Whit Monday	--	--
26 TH	--	--	--
27 W	--	--	--
28 TH	6.30-9.30	STUDIO	W. G. B. Lewis
29 F	6.30-8.30	Specifications & Estimates	F. R. Farrow
30 S	--	--	--
<b>JUNE 1896</b>			
1 M	6.30-9.30	STUDIO	W. G. B. Lewis
2 TU	6.30-8.30	Exam. Practice & Revision	—
3 W	6.30-8.30	Specifications & Estimates	F. R. Farrow
4 TH	6.30-8.30	Exam. Practice & Revision	—
5 F	6.30-9.30	STUDIO	W. G. B. Lewis
6 S	--	--	—
8 M	6.30-9.30	STUDIO	W. G. B. Lewis
9 TU	6.30-8.30	Exam. Practice & Revision	—
10 W	7-8.30	Professional Practice	A. O. Collard
11 TH	6.30-8.30	Exam. Practice & Revision	—

Date	Hours P.M.	Lectures, Classes, &c.	Masters
<b>JUNE 1896 (contd.)</b>			
12 F	7-8.30	Professional Practice	A. O. Collard
13 S	--	--	--
15 M	--	--	--
16 Tu	--	--	--
17 W	7-8.30	Professional Practice	A. O. Collard
18 TH	--	--	--
19 F	7-8.30	Professional Practice	A. O. Collard

**Second Year: For R.I.B.A. Students registered in 1894 and previous years.**

The "Student R.I.B.A." during the A.A. Session 1896-97 would take the remainder of the A.A. Division II. Lectures and Classes—viz. Special History Subjects under Mr. Farrow; Stresses and Strains under Mr. Holmes; with Hygiene: Materials and Construction, Ventilation, Lighting, and Heating, under Mr. Farrow. He would also use the Studio for a second year, and continue in the Advanced Class of Design. It may further be assumed that during 1896-97 he would considerably advance, if not complete, the Testimonies of Study which he is required to submit for admission to the Final Examination qualifying for candidature as Associate.

**Fees for the Two Years' Course (exclusive of the A.A. annual subscription).**

**FIRST YEAR.**

	£ s. d.
Studio and the Advanced Class of Design (71 evenings)	5 5 0
History of Architecture, with the Characteristic Architectural Features, Mouldings, and Ornament (14 lectures and classes)	1 7 6
Materials: their nature and application (10 lectures and classes)	12 6
Construction (10 lectures and classes)	12 6
Hygiene: Drainage and Water Supply (6 lectures and classes)	7 6
Specifications and Estimates (4 lectures and classes)	7 6
Professional Practice, including Legislative Enactments relating to Building Contracts (4 lectures and classes)	7 6
	<b>£9 0 0</b>

**SECOND YEAR.**

Studio and Advanced Class of Design	5 5 0
Special History Subjects (6 lectures and classes)	10 6
Stresses and Strains (4 lectures and classes)	7 6
Hygiene: Materials and Construction, Ventilation, Lighting, and Heating (6 lectures and classes)	12 0
	<b>£6 15 0</b>

Total—Two Years' Course, £15. 15s.

**THE GLASGOW AND WEST OF SCOTLAND TECHNICAL COLLEGE.**

The *Calendar* for the ensuing Session of this College, just issued, gives full particulars of the courses of architectural education to be conducted under the direction of Mr. Charles Gourlay [A.J.], Professor of Architecture at the College. In former sessions the classes in architecture have been held only in the evening; but under the new rule day classes will be taken by Professor Gourlay on Mondays and Thursdays from 9.30 till 12.30, and will include two Courses, Junior and Senior, of 60 lectures each, with tutorial instruction in the Studio. The Junior Course is intended to assist students in preparing for the Inter-

mediate Examination of the Institute, and the Senior for the Final Examination.

#### Day Instruction.

The Junior Course embraces—

(a) ART.—The origin, development, and application of the orders of Greek and Roman Architecture, with the several varieties of ornament appropriate to each order.

The successive development of the styles of Architecture in England, with the characteristic mouldings and ornament of each period.

(b) CONSTRUCTION.—The nature, qualities, and defects of ordinary building materials. The calculation of strengths of materials and resistances. The elementary principles of Construction.

(c) DESIGN.—Simple subjects are set upon the ground covered in the lectures, whereby the student becomes acquainted with the elements of Design in Architecture.

The Senior Course embraces—

(a) ART.—The leading characteristics, history, and development of the principal Styles of Architecture, with the mouldings and ornament appropriate to each style. Particulars of celebrated buildings and their architects.

(b) CONSTRUCTION.—The principles of Hygiene in relation to Architecture. The nature and properties of building materials. The principles of stresses and strains; formulas for their calculation and their graphic determination. The principles of construction, and their application in practice to foundations, walls, arches, vaults, girders, floors, roofs, &c., and constructive details in all trades.

(c) DESIGN.—The design of buildings of moderate dimensions to be made from data to be given, with details of construction and ornament, by means of scale and full-size drawings.

(d) PROFESSIONAL PRACTICE.—Specifying, estimating, and measuring work of the building trades. The relative position, duties, and responsibilities of client, architect, and builder.

The fee for each Course is £2 2s.

#### Evening Instruction.

##### LECTURES AND CLASSES ON ARCHITECTURE AND DESIGN.

The courses are arranged to supplement the training required by architectural pupils in the offices where they are engaged, and prepare for the examinations qualifying for the grade of *Student*, and for candidature as *Associate*, of the Royal Institute of British Architects. Every lecture is copiously illustrated by photographs, lithographs, drawings, and some by lantern views. The lending library of the College contains a good collection of architectural works for the use of students.

**FIRST COURSE: CLASSIC ARCHITECTURE** (30 Lectures, on Tuesdays, from 7 till 8).—Introduction to the study of Architecture. The influence of Ancient upon Classic Architecture. The history of Greek and Roman Architecture. The origin, development, and application of the Orders; the curves used; and the appropriate enrichments for each part.

Analysis of Greek buildings and of Roman temples, baths, monuments, and houses into the plan, walls, roofs, openings, columns, ornaments, sculpture, and use of colour.

The Orders of the Renaissance and their application.

**SECOND COURSE: MEDIEVAL ARCHITECTURE** (30 Lectures, on Wednesdays, from 7 till 8).—The successive developments of the Mediæval styles, with the characteristic mouldings and ornament of each period:—In England, from 1066 to 1550 A.D.; in France, from 1055 to 1515 A.D.; and in Scotland, from 1057 to 1542 A.D.

Analysis of cathedrals, abbeys, churches, and domestic buildings, &c., into plans, walls, towers and spires, gables, piers and columns, doors and windows, vaulting, timber roofs and screens, fonts, ornaments, metal-work, stained glass, sculpture, brasses, textile fabrics, &c.

In connection with Courses I. and II. the classes meet every Tuesday, Wednesday, and Friday, from 7 till 9.30, for the drawing of Classic and Mediæval examples, as well as for the preparation of the Testimonies of Study required for the Intermediate Examination of the Royal Institute of British Architects.

The fee for each Course is 10s.

**THIRD COURSE: HISTORY OF ARCHITECTURE** (30 Lectures, on Fridays, from 7 till 8).—History of Ancient and Oriental Architecture; Greek in Greece, Asia Minor, and Sicily; Etruscan; Roman in Italy and the Provinces; Byzantine in Greece, Italy; Romanesque and Mediæval in Italy; Renaissance in Florence, Rome, Venice, and other cities and towns in Italy; Romanesque in France; early, middle, and late Renaissance in France, Mediæval and Renaissance in the Low Countries, Germany, Spain, and Portugal; Tudor, Elizabethan, Jacobean, Jones and Wren, and the later Renaissance in England. Renaissance in Scotland.

In connection with Course III., the class meets every Tuesday, Wednesday, and Friday, from 7 till 9.30, for the drawing of Classic, Mediæval, and Renaissance examples and designs based upon them, and the preparation of the Testimonies of Study required for the Final Examination of the Royal Institute of British Architects.

The fee for Course III. is 15s.; for a Second Session, 10s.

**MEASURING AND SKETCHING CLASS.**—Students attending any of the above classes meet in Glasgow Cathedral and visit other local mediæval buildings on Saturday afternoons, from May till October, under the guidance of the Professor and Assistants, for the measuring and sketching of old work.

#### ARCHITECTURAL STUDIO.

Mr. James Lochhead [A.] is the Instructor in the Studio, which is open on Tuesday, Wednesday, and Friday evenings, when all Students enrolled in the Architectural Classes meet for Architectural Drawing and Design. Subjects for design to Courses I. and II. are based upon the lectures and instruction given in each course respectively.

**COURSE I.**—Gateway; monument; stone screen.

**COURSE II.**—Entrance porch; organ case; memorial chapel.

**COURSE III.**—Designs based upon the Italian, French, and English Renaissances. Particulars will be given during the session.

#### LECTURES & CLASSES: BUILDING CONSTRUCTION AND DESIGN.

These classes are held on Mondays and Thursdays, from 7 till 9.30. On Saturday afternoons visits are made to buildings in progress.

The first or Elementary Course includes—

*Introductory.*—Drawing, inking, colouring, and isometric projection.

*Brickwork.*—Different bonds. Junction of walls at right angles. Gauged work. Arches over openings in external and internal walls. Jambs of window and door openings. Footings. Corbeling.

*Masonry.*—Classification of walling—ashlar, rubble, &c. Stone arches. Joints and connections. Dressings—string courses, cornices, &c.

*Iron Girders.*—Cast-iron girders and cantilevers, wrought-iron joists.

*Carpentry.*—Joints—lapping, fishing, scarfing, &c. Fastenings—straps, plates, shoes, screws, &c. Floors—single, double, and framed. Partitions—quartered and brick-nogged. Timber roofs, from flat roof to queen-post truss roof. Composite roofs of wood and iron.

*Slating.*—Names of parts, preparing and the methods of laying slates.

*Plumbing.*—Lead work connected with chimneys, ridges, hips, valleys, gutters, and lead flats. Joints for lead pipes.

*Joinery.*—Mouldings. Joints. Framing. Doors—ledged

ledged and braced, framed and braced, and panelled. Solid door and window frames. Windows, fixed sashes, cased frames with double-hung sashes. Casement windows.

*Iron Roofs.*—Roofs with straight rafters, and details.

The Second or Advanced Course includes—

*Foundations.*—Timbering for excavations. Incompressible and compressible soils. Piles and pile foundations.

*Brickwork and Masonry.*—Compound walls. Prevention of damp in walls. Joints—flat, struck, keyed, &c. Hoop-iron, diagonal, herring-bone, and other bonds. Bond in arches. Brick drains and sewers. Chimneys. Grouting. Lorrying. Pargetting.

*Roofs.*—Timber and iron roofs up to 60 feet span. Queen-post and mansard roofs and details. Trussed rafter and queen-rod roofs. The designing of wooden and iron roofs.

*Centres.*—Centres for circular, segmental, and elliptical arches. Centering for concrete. Bricklayer's and mason's scaffolding. Methods of securing stones to be lifted.

*Roof Coverings.*—Tiles, corrugated iron, sheet lead, zinc, copper, &c., and the various methods of laying same.

*Stresses.*—The natures of the stresses to which the different parts of simple structures are subjected. Calculation of strength of materials and resistances.

*Riveting.*—Proportion and pitch of rivets. Riveted joints. Essentials of good riveting. Causes of failure.

*Girders.*—Built-up beams, curved ribs, timber and iron girders, the construction of travellers. Flitch and trussed beams.

*Joinery.*—Joints. Fixing joiners' work, grounds, architraves, skirtings, &c. Linings, shutters, skylights, and lanterns.

*Stairs.*—Different forms. Stone and wooden stairs. Handrailing.

*Fireproof Floors.*—Girders with brick arches. Fox and Barrett's, Doulton-Peto's, W. H. Lindsay's, Dennett's, and other systems.

*Plasterers' Work.*—Materials used by the Plasterer. Lathing, &c. Rendering and plastering. Cornices. Arises.

*Materials.*—The nature, application, and characteristic peculiarities of the following materials:—Bricks. Granite. Slate. Stones. Limes. Cements. Mortars. Concrete. Asphalte. Timber of different kinds. Cast and wrought iron and steel. Copper. Lead. Zinc. Tin. Glass.

The Third or Honours Course includes—

*Calculations for Structures.*—Equilibrium. Beams. Cast and wrought iron and steel beams. Columns. Plate girders. Braced girders. Trussed beams. Roofs. Stability of brickwork and masonry structures. Retaining walls. Arches, vaults, spires, &c. Shoring and underpinning. Hydraulics in building construction.

*Materials.*—Terra cotta, manufacture of cast and wrought iron and steel, copper, tin, zinc, alloys, and a more complete knowledge of those stated in advanced course, including their application, strength, decay, preservation, and how to judge of their quality.

*Air.*—Composition. Nature of impurities. Purification.

*Ventilation and Warming.*—Quantity of air required. The modes in which the necessary fresh air can be supplied. Natural and artificial ventilation. Lighting. Fireplaces, stoves, and grates. Warming by hot water, high and low pressure, and by steam.

*Water.*—Quantity per head. Sources, storage, and distribution. Action on lead. Quality, composition, and origin of the impurities in drinking water. Purification. Action of water filters.

*Removal of waste and impurities.*—Amount of excreta. Dust bins. Earth closets. Methods of removal of excreta. Treatment and utilisation of sewage.

*House Drainage.*—Construction, position, and ventilation of drains. Traps. Closets, sinks, baths. Testing and flushing of drains.

*Soil.*—Conditions affecting health. Solid constituents. Aspect.

*Local conditions.*—Humidity. Movement and weight of the air. Climate. Influence of surrounding objects. Rainfall.

*Shelter.*—Materials used in the construction of walls and roofs, and their properties. Ventilation through walls. Foundations and basements. Floors. Wall coverings, dangerous papers. Paper-hanging. Paints, varnishes, and painting. Glass and glazing.

*Professional Practice.*—Specifications. Estimating cost. Contracts.

Lectures and Drawing on Wednesdays and Fridays, 7 till 9.30. Drawing and Design on Tuesdays, 7 till 9.30. All students attending the Third Course will meet on Tuesday evenings for tutorial instruction in design and in the preparation of working and scale drawings. Subjects for design comprise public and private buildings. The fee for the Third Course is 15s.; for a Second Session, 10s.

#### BRICKWORK AND MASONRY. CARPENTRY AND JOINERY.

There will be a course of Lectures on Brickwork and Masonry. The First Course held on Mondays and Thursdays, 7 till 9.30; the Second on Wednesdays and Fridays, from 7 till 9.30.

Also a course of Lectures on Carpentry and Joinery. The First Course held on Mondays and Thursdays, 7 till 9.30; the Second on Wednesdays and Fridays, 7 till 9.30.

Fees for Brickwork and Masonry or Carpentry and Joinery—First Course, 10s.; Second Course, 15s. These fees include the Building Construction Class. Gentlemen attending the Architectural or the Building Construction Class may join the Class for Modelling, conducted by Mr. Ferris, and the Art Classes, held in the Department of Industrial Art, West Regent Street, Glasgow, on payment of an additional fee of 5s.

#### THE NORTHERN ASSOCIATION.

With a view to encouraging Probationers, Students, and others to prepare themselves for the R.I.B.A. Examinations in its own district, the Northern Architectural Association (Newcastle) offers a first prize of two guineas and a second of one guinea for the best set of drawings or "Testimonies of Study," as required for the Final Examination. Similar prizes will also be given for the Testimonies of Study required from Probationers for admission to the Intermediate Examination. The drawings are to be delivered to the Hon. Secretary of the Northern A.A. not later than 5 p.m. on 28th February 1896 (under motto).

With a view to assisting young men, members of the Council will attend at the rooms of the Association on the first Wednesday in each month, from 6.30 to 7.30 p.m. (commencing 6th November 1895).

#### KÁFIRISTÁN.

##### SIR GEORGE ROBERTSON'S REPORT.

The Indian Government may be heartily congratulated in possessing a servant so competent and devoted as the British Agent at Gilgit in Kashmir, Sir G. S. Robertson. Brilliant as are the achievements, often very little known, of civilians employed on "political" work such as that with which Sir George is entrusted, few, if any, can surpass in value, interest, and style his Report on "Káfiristán and its People," a copy of which has been presented to the Institute by the Secretary of State for India. A preliminary Paper on the subject was read last year by the same author before the Royal Geographical Society,\* and readers of the following extracts from the Report will do well to look at the map published in that Society's Journal, as it illustrates the journeys he made in Káfiristán, and shows

\* See, in *The Geographical Journal*, vol. iv. p. 193, "Káfiristán," by Dr. G. S. Robertson, C.S.I. The map is at p. 284.

the geographical position of the country in regard to Kabul, Chitral, and Gilgit. Under this head Sir George writes that "the geographical position of Káfristán is "all included between latitudes 34° 30' and latitude 36°, "and from about longitude 70° to longitude 71° 30'. The "western frontier being very imperfectly known and some- "what ill-defined, it is difficult to estimate accurately the "size of the country. Its greatest extent is from east to "west at latitude 35° 10', its greatest breadth is probably "at longitude 71°. Its map area may be put down as "somewhere about 5,000 square miles." The Report, which is divided into twelve sections, treats of the topography, government, trade, and agriculture of the country; the origin and characteristics, the religion and arts, the manners and customs, the houses and other buildings, of the people. The following passages are taken from Sir George's Report:—

#### Origin and Physical Characteristics.

As there are no rock inscriptions, no ancient books, nor any literature of any kind to be found in Káfristán, and as the traditions of the people themselves give such small help in forming any opinion concerning their origin, the only hope which remains that the Káfirs may be eventually assigned their proper place in the general history of the world is from a comparative study of their language, their manners and customs, and their religious ceremonies, as well as from their cranial measurements, and other anthropometric observations. That they are made up of different races appears certain; that they have no admixture of Tartar blood seems obvious; that they came from the West, at least the great majority of them, is their own fixed idea, and is more than probable. If there may be points of resemblance between present Káfir and ancient Greek sacrificial observances, and if certain of their domestic utensils, such, for instance, as the Wai wooden dish-stand, may seem to be fashioned in Grecian mould, it may perhaps be conjectured that some of the Káfr tribes, at any rate, are still influenced, as the ancient Indian populations of Eastern Afghánistán were also influenced, by the Greek colonists of Alexander, and that these Káfirs, having never been under the rule of Mahomedans, may possibly represent some of the people of Eastern Afghánistán as they were before the victorious Moslem defeated and converted them to Islam. . . . A conquering race may progress in the arts and in civilisation, as it progresses and excels in warlike skill. But not so an isolated people like the Káfirs. . . . If it were not for their splendid courage, their domestic affections, and their overpowering love of freedom, Káfirs would be a hateful people. In other respects they are what they have been made by uncontrollable circumstances. For them, the world has not grown softer as it has grown older. Its youth could not be crueler than its present maturity, but if they had been different they would have been enslaved centuries ago. Their present ideas and all the associations of their history and their religion are simply bloodshed, assassination, and blackmailing; yet they are not savages. Some of them have the heads of philosophers and statesmen. Their features are Aryan, and their mental capabilities considerable. Their love of decoration, their carving, their architecture, all point to a time when they were higher in the human scale than they are at present.

#### Villages and Houses.

(1) THE FORT VILLAGE.—The fort village is peculiar to the Kátir tribe. In the Bashgul country Itsigrom in the Skorigul, Pshui, Apsai, Shidgul, and Badamuk are of this kind. These villages are built in an oblong figure, the houses, two or three storeys high, surrounding a centre courtyard which is partially occupied by a dancing-place and a rude altar, while the dancing-house, or

gromma, which is used in the winter and in bad weather is close by. The exterior of such a village offers to an enemy an unbroken front, as all the windows of the rooms looking outwards are very small. There is usually only one entrance gate, or at most two, in which case the second not unfrequently, as at Badamuk, leads into dark passages difficult to penetrate at any time without a guide. The main entrance is capable of being quickly and effectively closed. Such villages are usually built on the bank of a river flowing through the Káfir equivalent for a plain. When besieged the inhabitants obtain their water from the river by means of a tunnel, which leads from the central courtyard to the river's edge, and ends in a covered way made of roughly hewn timbers. These fort villages contain from 120 to 200 different families, and are all greatly overcrowded. The houses which form the four sides of the oblong figure have low cellars like chambers underneath them, into which sheep, goats, and cattle are driven when an attack is imminent. The corners of the village are generally strengthened by towers, and at Badamuk and other places, where there are steep slopes in close proximity, one or two detached three-storeyed towers are built up the hillside as an additional security. A great deal of wood enters into the construction of these villages. On the courtyard side the dwellings or rooms are often furnished with verandahs or wooden galleries open in front, the uprights and frames of which are often rather effectively carved in the ordinary basket-work pattern, or with purely conventional heads of animals. The different floors of a house are reached by solid ladders, that is to say, by planks shaped by the axe alone, and deeply notched at proper intervals for the feet. The quaint carvings, and the irregular outline of the inner aspect of the houses caused by the verandahs or galleries, render these villages somewhat picturesque; but they are grimed black with smoke, the open spaces are littered with the bones and horns of animals killed for food, and the general appearance is squalid and depressing, while the stench is sometimes hardly bearable. The cellars or half subterranean stables already mentioned are used in peace-time as latrines. The odiferous pine leaves with which they are littered do but little to disguise the fact. These chambers are only cleared out when manure is wanted for the fields.

(2) VILLAGES BUILT ON DEFENSIVE POSITIONS.—Good examples of this form of construction are found at Purstám, Bajindra, and Gourdesh. The houses at Purstám are clustered together on the east face of a steep detached rock, inaccessible from every other direction. The lowest habitations are on the bank of a side branch of the Bashgul river. The road up the rock between the houses is extremely steep. Half-way up is the gromma, or dancing-house, with its wooden platform adjoining. Bajindra is one of the most curious villages in Káfristán. At that place advantage has been taken of the flat upper surface of a huge detached piece of rock, and upon it some thirty different domiciles have been crowded and superimposed the one on the other. The only way to reach the houses is by a bridge which connects the village with the hillside behind. This bridge can be easily broken away, and then the houses are absolutely inaccessible. The drawback to the position is that the river is a little distance away, and there is no other water supply for the people. There are two or three little hamlets in the Skorigul built precisely after the fashion of Bajindra on fragments of rock, but they are all on the river bank by the water's edge. The village of Gourdesh is a densely populated cluster of some twenty-five houses, built on the knife-edge of a rocky spur which projects into the Gourdesh valley, and compels the river to flow in a pear-shaped course round its base. This spur, 200 or 300 feet high, is precipitous except at its point of connection with the main range of hills, where there is a watch tower, and where the village can be easily defended

To enable all the houses to perch on the rocky ledge many ingenious contrivances have had to be adopted. In some instances the verandahs or wooden galleries are supported on long wooden pillars, the bases of which fit into crevices in the rock. An additional appearance of insecurity has been produced in some places where the sustaining pillars, having proved too short, have been supplemented by the placing of smooth water-worn stones beneath them. The insecurity of this arrangement is, however, more apparent than real, for experience has taught the Káfirs so much skill in the management of weights that even the most fragile structures they erect rarely, if ever, collapse. Villages like Gourdesh cannot possibly grow larger, and in consequence they are greatly over-populated.

(3) POPULOUS VILLAGES.—Places like Kámdesh, Bagal-grom, and Bragamatál (Lutdeh) depend for their protection on the strong arm of a numerous population rather than on fortifications or the happy selection of a good defensive site. Any detached towers which such villages may possess are more for use as watching-places than for defensive purposes, although they are capable of being employed for the latter purpose also. In some portions of Kámdesh the houses are built in regular terraces, which rise one above the other like a giant's staircase, or they are made to overhang steep drops or low precipices. They are likewise crowded into many awkward and inconvenient positions, with the obvious intention of not curtailing or interfering in any way with the cultivation. In many other villages the same cause and the same result are seen to a very much greater extent. Kámdesh, Bagal-grom, and that portion of Bragamatál which is on the right bank of the river are built on no regular pattern, houses being erected wherever there is room for them. The left bank part of Bragamatál is laid out in the form of half a regular hexagon open towards the south. The enclosed space is occupied by the grooms and dancing platform, and by detached clusters of houses.

(4) WALLED VILLAGES.—The only regularly walled villages with which I am acquainted are in the Presungul. Their general construction is as follows. The houses are packed together on and in the substance of a mound or rounded hillock. Many of the rooms are underground. At the foot of the slope a short distance away there is a protecting wall topped with brushwood. At Pushkigrom, the lowest village in the valley, the arrangement is somewhat different. There the houses are built on a slope which is surmounted by watch towers from which extend walls which run down to and encircle the houses. This surrounding wall is strengthened with barricades at different points, and looks fairly strong.

(5) UNDEFENDED VILLAGES.—There are some villages in Káfristán which are both small and defenceless, and are also easily accessible. From such places the inhabitants must bolt at once if a formidable enemy makes his appearance. There are others which could be defended if the people were brave, e.g. Kstigigrom in the Presungul. There, however, the villagers prefer to retire to a large cave overlooking their homes, where they cannot be followed. From that safe and elevated position they have more than once watched their houses being sacked and burnt. Other small villages seem to find a sense of security in the fact that they are more or less hidden away in the hills or up difficult and unpromising ravines. Of these, as of all other villages in Káfristán, it may be said that they find their chief protection in the easily defensible nature of the main roads of the country.

#### The One-room House.

The simplest form of house consists of one apartment, oblong or square in shape, and measuring some 18 by 18 or 18 by 20 feet. It is usually well built of cedar timber and rubble stones embedded in mud mortar. The timbers, fashioned with the axe alone and roughly mortised together at the angles of the building, form a series of wooden frames upon and between which the masonry is built.

These wooden frames are about nine inches apart. The thickness of the walls is about five inches. They are well plastered with mud both inside and out, and are strong and durable. There are sometimes two doors, but usually only one. The door is a solid piece of wood, shaped by the axe alone. There are no hinges, but small projections from the upper and lower edges are made to revolve in sockets in the door frame. The Káfir slaves, if we consider the indifferent tools at their disposal, are extremely clever at carpentry. In addition to the door or doors there is often a little window also. It is usually 15 or 18 inches square, and is closed by a wooden shutter revolving on pivots. The doors are fastened by a wooden bolt, which is made to run easily in a groove cut in the solid substance of the door, and thence into a socket in the door frame. The bolt has vertical notches all along one side. Just above the groove in which it works is a small round hole in the substance of the door. This is the keyhole. The key is a piece of iron wire, about the thickness of the top of the little finger, and more than a foot long. It is bent back in such a way that it is somewhat of the shape of a pot-hook, and can be pushed through the keyhole, and then if it is turned downwards the end can be made to catch in the slots in the bolt, and the latter can be pushed back, and the door opened.

CENTRE-PILLARS.—In the centre of every room at each corner of the square hearth are four wooden pillars, which are often elaborately carved. These pillars are usually between 5 feet and 6 feet apart, and are either rounded or more or less square in shape. Their diameter varies from 9 inches to 15 inches. From the lateral walls of the apartment two large beams cross over, and are mainly supported on the top of the hearth pillars.

THE ROOF.—Boards covered with beaten-down earth form the roof, but they do not fit accurately, so that snow, water, and rain find easy access into the room. The only way to minimise this discomfort is to keep adding earth to the roof, and to get it beaten down or trampled by men or goats. The roof is the worst feature of all Káfir houses. As they are all made in the way described and are all flat, there is not one which is even moderately watertight. It is necessary that they should be flat, for contiguous roofs form, perhaps, the only level spaces which can be found in some villages, where corn can be winnowed or threshed, or fruit be spread out to dry.

THE SMOKE-HOLE.—The smoke-hole is over the middle of the hearth. It is usually about a foot square, and has enclosing boards which project a few inches above the level of the roof. It is closed by a flat board, with a long handle in the middle, being placed over it. The long handle hangs down into the room, whence it can be pushed up, and the smoke-hole opened. The hearth square in the centre of the room is raised a few inches above the level of the surrounding floor, and like the latter is made of beaten earth. There is some special sanctity connected with the hearth, for although slaves may cross the threshold of the priest's house, they may on no account approach the hearth. The height of a room does not exceed seven or eight feet.

The foregoing description applies to the house of an average poor Káfir of the Bashgul valley. In such an apartment he brings up his family. There would probably be also a stable or rough kind of shed, leaning against one wall of the house, and more or less completely closed in by mud walls, or by screens made by twisting twigs together. This shed would be used as a latrine.

#### Houses of the Better Class.

A better kind of house in the Bashgul valley consists of two storeys, the upper part being reserved for the dwelling-place, while the lower half is used as a cow stable or a wood store. The best-built habitations in the Bashgul valley are those used by the wealthy Káfirs of the Kam tribe. Such dwellings consist of three storeys. The top floor is the living-place, the middle storey is the store-room,

while the bottom room is employed as a cow stable or wood store in the winter, and a latrine at all times. In this variety of house a verandah is almost always projected from the top storey. These verandahs, or open wooden galleries, are well-made structures, closed on all sides except in front. They are frequently elaborately ornamented with carving. The projecting floor of the verandah is supported on long wooden pillars, the lower ends of which are securely kept in their proper position on the ground by the nicety with which the weights above are adjusted. The roof of the verandah is upheld by the wooden framework of the structure, and by a row of pillars which run down the centre of the floor. Frequently all the pillars and the front of the verandah are prettily carved, and its roof beams, which are allowed to project a foot or more beyond the walls, are fashioned at the ends into effective, if grotesque, animals' heads.

#### Houses of the Presun Káfirs.

The houses of the Presun or Viron Káfirs differ in many respects from those already described. Perhaps the most obvious and striking peculiarity of the Viron houses is that their accommodation is principally underground. This arrangement is more particularly noticeable in the upper, and consequently colder, part of the valley. In that position, also, wood being scarce, it is sparingly used in the construction of the walls. The timbers are not shaped with the axe, as in the Bashgul valley, but are used in the form of round poles. The large proportion of mud and rubble to timber gives the houses a somewhat badly built appearance. There are no verandahs to break the ugly lines of the buildings. In the lower part of the valley at Pushkigrom, wood is abundant, and the domiciles are built almost exclusively of round poles, very little masonry being used in their construction. The villages themselves are either built on a hillock or on a slope. There is one exception to this rule in the case of the village called Diogram, which is on level ground close by the river. In the villages of the upper part of the valley, those parts of the houses above ground are very low, and the doorways which open on to the lanes are rarely more than 3 feet 6 inches or 4 feet high. The houses are packed together closely, and the paths between them are hardly wide enough for a man with moderately broad shoulders. Many of the houses have three apartments, one below the other; one being half underground, and the other two completely so. I carefully examined the house of the Shtevgrom priest. From the roadway a 3 feet 6 inches doorway opened on to a short ladder, by which the floor of the dwelling-room was reached. That apartment was 20 feet square, but only 7 feet high. The roof was supported by numerous pillars, all of which were grotesquely carved into a supposed resemblance to gods or goddesses. Four pillars carved with more than usual care bounded the hearth in the ordinary way. Each was made to resemble, more or less, a man on horseback. The horseman was given an enormous face, shield-shaped, 1½ foot long by 10 inches at the broadest part, the brows. The chin was not more than an inch and a half from the top of the diminutive horse's head. The rider's left hand rested on the horse's neck. What at first sight looked like an enormous ear turned out to be the horseman's right arm grasping a weapon. The tiny animal itself was given a little stand, such as a toy horse has. The nose of the effigy was scored by parallel lines, intersected at right angles by similar parallel lines. All the other pillars in the room were similarly carved into grotesque male or female forms, except that they were not provided with horses. Above the hearth, which was 7 feet square, there was a wooden structure, 4 feet square, which projected above the level of the roof about 4 feet. This was roofed, and in one corner of it there was a smoke-hole a foot square. This peculiar chimney arrangement is very common in Presungul. From the dwelling-room a ladder led into a lower apartment, which was not more than 5 feet in height.

There was yet another room, lower still, which was reached in a similar way. There it was possible to stand upright. From this lowest apartment a tunnel ran under the village wall to the river bank. A second tunnel, which I was solemnly informed had been originally constructed by Yush (the Devil), burrowed under the village tower or citadel.

#### A Káfir Tower.

A Káfir tower used for watch and ward is from one to four storeys in height. It is of square shape, and commonly 10 feet by 10 feet. The door is always some considerable height above the ground, and is reached by a ladder, which can be drawn up in time of need, when the men inside are completely out of reach. The floor of each of the upper storeys has a large square aperture in the middle, and each is usually provided with a ladder. The top of the tower, the three or four feet which constitute the parapet, is a little wider than the rest of the building, and projects about a foot outwards on every side. At the foot of this parapet are a series of holes all round, which enable the defenders to see clearly all the walls of the tower, and to command its base. Such structures are sprinkled all over the country, and are, as a rule, extremely well built.

#### The Dancing-place and Gromma, or "Church."

The dancing-place is always the most important spot in a Káfir village. There is usually only one, but Kámdesh and Bragamatil have two each. A dancing-place should consist of a house to be used in winter and in bad weather; a boarded platform, which, if the level ground available is very limited, as is commonly the case, often projects from a slope, and is upheld at its outer extremity by long poles; and a level piece of ground, on which particular dances are performed, which is furnished with a rude stone altar. A description of the upper Kámdesh dancing-place will also apply, with some modifications, to all similar places in the Bashgul valley. The whole place is called the gromma, a name evidently derived from the word "grom" or "brom," the Bashgul term for a village. A Káfir who had been to India with me always called the gromma the "church" when he spoke Urdu. To the north of the Kámdesh dancing-place is the gromma, or dancing-house. It is 12 feet high, 35 feet long, and 30 feet broad. Its sides are barred, not closed, by heavy square beams, between the intervals of which spectators can thrust their heads and shoulders restfully. During a spectacle these apertures are generally crowded with the heads of girls and women. Down the centre of the gromma run two rows of massive pillars, which support the heavy roof. They are about 6 feet apart. The central four are quite plain, except at the top, where they are ornamented with curved horses' heads. The remaining four are completely covered with the ordinary basket-work carving. In the middle of the roof there is a 4-feet-square smoke-hole. Bordering the gromma to the south is the largest level space in the village. It is about 30 yards square. On it there is a rude altar, formed of two upright stones, with a horizontal one on top. On this altar there are almost always to be seen the remains of a recent fire. To the east this space is continuous with a platform, which is carried out from the steep slope and maintained in that position by wooden pillars and beams. It looks, and is, a shaky structure. A railing runs round its three dangerous sides. Seats are provided on it in the shape of long planks, of comfortable breadth, a few inches off the floor. These platforms are always to be seen if the village is built on the side of a hill. Most of the shrines at Kámdesh are provided with a platform, which only differs from that at the gromma in point of size. In villages built on the flat, such as those in the upper part of the Bashgul valley, the platforms are lifted off the ground on trestles. They are, indeed, an essential part of every dancing-place, because certain ceremonies cannot be performed except on them.

